

OCTOBER 1953

News Magazine of the American Standards Association, Incorporated



WORLDWIDE ACTION ON ELECTRICAL PROBLEMS

Mass Production
Made Possible

Fluorescent lamps (above) are one of many electrical products mass produced due to standards for electrical characteristics and mechanical dimensions. International uniformity is IEC's job.

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Marginal Notes

Personal Impressions of Yugoslavia's Tito

With Tito of Yugoslavia making headlines in today's newspapers, STANDARDIZATION has the unusual privilege of presenting personal impressions of both the country and the man by a standardization expert of long experience. Dr Osborne was in an unusually favorable position, when he visited Yugoslavia, as president of the International Electrotechnical Commission to gather firsthand impressions. He discussed the technical development of the country with those who are charged with the responsibility for planning and bringing about its economic and technical growth. He discussed the place of electrical energy in increasing the industrial strength of the country. With representatives from member organizations representing 17 countries, he considered ways and means of bringing about greater coordination in the use of electrical power and electrical equipment in order to improve the economic condition of the world. Dr Osborne's personal impressions of his visit to Yugoslavia are on page 293 of this issue.

What IEC Accomplished

The specific achievements of the meeting in Yugoslavia toward international coordination of national electrical standards are reported by R. C. Sogge, chief of the United States delegation (page 215).

A City Saves with Standards

S. P. Kaidanovsky's second article on Government Standards (page 305) takes up the work of a city known for its efficient purchasing and its use of standards to attain that efficiency. Joseph Nicholson, city purchasing agent for more than 25 years, has built up an organization that is responsible for saving Milwaukee's citizens an estimated \$1,000,000 per year.

One of Mr Nicholson's pet projects—somewhat loosely connected to standardization—is represented by a

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Nat Safety Council
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Oxychloride Cement Assn
Photographic Mfrs Group: Ansco Div of Gen Aniline & Film Corp
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Mr Nicholson (right) watches Assistant City Purchasing Agent Andrew L. Lehrbaum prepare wooden box for selection of winner in tie bid. Secretary Dorothy Brzakala keeps the record.

little wooden box with glass windows. This little box whirls around on its axis in response to vigorous cranking, while inside the box a half dozen colored and numbered balls rattle against the sides. When a slot opens, a red ball drops out. This procedure is followed whenever several bidders submit identical low bids. The lucky winner of the contract is the bidder whose number appears on the red ball that falls out of the box. Mr Nicholson believes this to be the fairest method that can be devised to settle arguments over tie bids.

Mr Nicholson and his staff buy more than \$7,500,000 in materials, supplies, and services in one year. Purchases cover 60,000 items in 36 major classifications, ranging from aprons to zinc and including baseball backstops, brooms, diapers, nuts and bolts, and x-ray equipment. The commodity code used by the City was patterned after the commodity code of the City of New York, Mr Nicholson reports, although it was modified to fit Milwaukee's requirements.

"Through History....."

The cartoon series, "Through History with Standards" (page 314) ends with this issue. You will soon be able to obtain the entire series in booklet form. Whenever you see a good standardization cartoon or joke, share it with others. Send it to the editor for publication in STANDARDIZATION.

Our Front Cover Photo Courtesy
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Standardization

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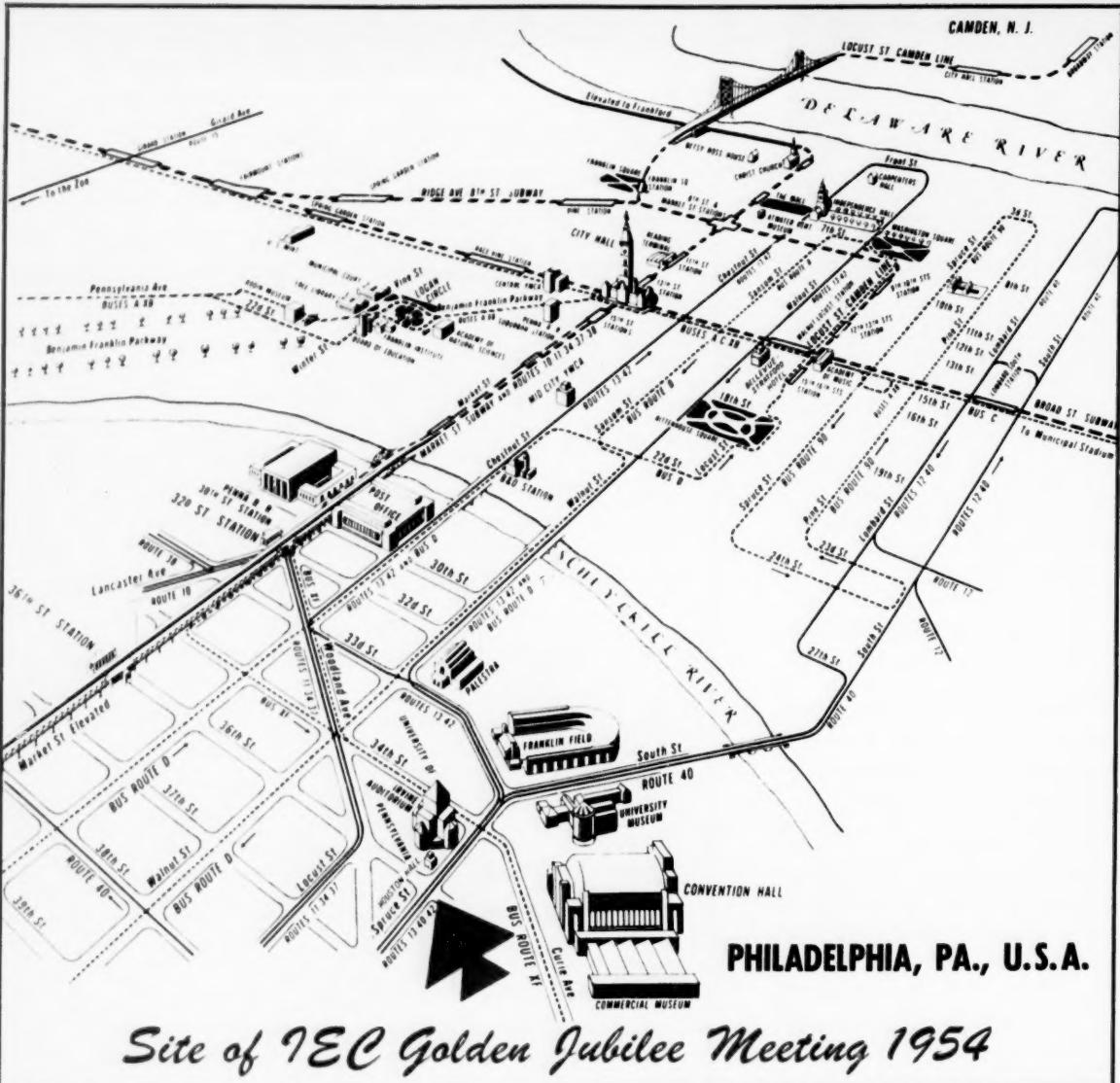
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Standardization is dynamic, not static. It means not to stand still, but to move forward together.

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Site of IEC Golden Jubilee Meeting 1954

THE International Electrotechnical Commission is the body for unifying electrical standards throughout the world in all branches of electrical science and technology. Its members are the national committees of 28 countries.

Fifteen technical committees and subcommittees, and the Executive Committee, of the International Electrotechnical Commission met this year at Opatija, Yugoslavia, from June 22 to July 4. These meetings were highly productive, responding to an increasing activity throughout the world in the unification of electrical standards.

The technical results have been reported by R. C. Sogge, President of the United States National Committee and leader of the 16-man USA delegation (see page 295).

Dr Harold S. Osborne, formerly Chief Engineer of the American Telephone and Telegraph Company, Past Chairman of ASA Standards Council, and former Vice-President of American Standards Association, here reports his impressions of the people and country as he experienced them during these meetings, and tells of the administrative decisions made by the Commission.

Impressions of IEC in Yugoslavia

by Dr H. S. Osborne

President, International Electrotechnical Commission

OUR visit to Yugoslavia was an unusually interesting and stimulating experience. I was greatly impressed with the cordial hospitality shown us and the thoughtful concern of our Yugoslav hosts for our comfort and entertainment. The Yugoslav National Committee of IEC and its parent organization, the National Standards Association of Yugoslavia, are to be congratulated on the splendid way in which they carried out arrangements both for the technical meetings and for the entertainment of the delegates.

Widespread interest in what is happening in Yugoslavia may be credited in part for the unexpectedly large attendance at these meetings. Some 380 persons were present from countries other than Yugoslavia. Three hundred seventeen of these were delegates, the rest were relatives and friends. More than 60 Yugoslav delegates also attended the meetings. All the countries of Western Europe, with the exception of Spain and Portugal, were represented, as well as Brazil, India, Israel, and the USA.

We were all impressed with the friendliness, charm, and kindness of the people we met, from President Tito (who talked with the president of IEC for a half-hour) to the waiters in the hotels. Yugoslav delegates were professors, engineers, and executives of electrical enterprises, who spoke either English or French, or both, in addition to their native language.

As in a number of other countries, the Yugoslav national standards association is a department of the government. The Yugoslav National Committee of the International Electrotechnical Commission is a branch of the standards association. Together, they form one of the government agencies that are working to develop Yugoslavia's industry and to build up her economic position in the world. Formerly an agricultural country pri-

marily, Yugoslavia is making an intense effort to increase her electrical power resources as a step toward increasing her industrial capacity. One hydro-electric power station has already been opened. Plans are now under way for building others. At the present time, Yugoslavia has a synthetic textile industry in operation in Croatia and hopes to establish more as soon as it is possible to do so. Shipyards are turning out ships that are being sold to other European countries, as well as those for the Yugoslav Navy and merchant marine. The possibilities of Yugoslav industrial development are considerable because of her large mineral resources. For example, one island was pointed out to us as being of solid high grade aluminum ore, as yet untouched.

A high spot of the trip for the president of IEC was a half-hour visit with President Tito. It was at 11

o'clock at night after a hurried and difficult trip by boat and car from Rab to the city of Pula and again by boat to Marshal Tito's summer home on the Island of Brioni.

During a post-convention pleasure trip on the Adriatic, word was received by telegram that President Tito would receive Professor Damianovic, President of the Yugoslav National Committee, and Dr Osborne, President of the Commission, at 6 o'clock that evening. Professor Damianovic and the writer, picking up on the way Mr Vitorovic, head of the National Standardizing body, made a dash for 200 miles by boat along the Adriatic Coast and by car over the mountains. Nevertheless, by the time we had ferried over to the island of Brioni, we had missed the 6 o'clock appointment by half an hour. It seemed an especially friendly and gracious gesture on the part of the President to add

A portion of one of Yugoslavia's important factories, where turbines are manufactured, is shown in this picture. Site of the factory is Litostroj, located in Ljubljana, capital of mountainous Slovenia. Buildings in foreground are workers' apartment houses.

Yugoslav Information Center



the conversation with us to the end of a very full day and receive us at 11 o'clock in the evening.

President Tito met us with no formality or pomp of any kind. He was completely alone, without staff, guards, or interpreters. He talked with the writer in good English, and remarked that he also speaks German and Russian.

Marshall Tito was interested to learn of the work of the International Electrotechnical Commission, the large number of delegates present, the countries represented, and the important work being carried on. He indicated appreciation of the importance to his country of their plans for hydro-electrical development. I remarked that when I return in five years I shall expect to see a great extension of their development of electrical power. Mr Vitorovic replied, "Yes, I think you will." The Marshall immediately corrected him. "Oh, no," he said, "I am *sure* you will."

President Tito was well aware of the important work of his countryman, Nicola Tesla, one of the great electrical pioneers, who did most of his work in the United States. Tesla is credited with discovering and working out the principles of the alternating current systems in common use today. A Nicola Tesla Museum has just been opened in Belgrade in celebration of the one hundredth anniversary of his birth. (On one of the tours arranged by the Yugoslav National Committee I met a cousin of Tesla's—a lively old lady still full of spirit.)

The Yugoslav National Committee arranged many interesting trips and entertainments for the delegates and their families. There were auto trips into the mountains and through the beautiful countryside—to Rijeka; to the Mount of Uska; to the medieval town of Lovran; to the Bay of Plovin; to the Caves of Postojna; to Bled over the mountains of Slovenia; to the Lakes of Plitvice, over the mountains (which skirt the Dalmatian coast). There was wonderful bathing on the beaches of Opatija; dances on the hotel terrace; concerts by Yugoslav opera singers and by the Slovenian philharmonic orchestra; a sym-

phony concert by the National Theatre of Rijeka; and folk dances by Slovenian students. There were a number of evening boat trips.

There was also a technical excursion to the Nicola Tesla hydro-electric works at Vinodol. This was an auto trip to Lakve and Fuzine, followed by inspection of the works on the dam in Lakve, returning by way of Zlobin and Plase to Tribalj. Here we were taken on a visit to the underground power station.

Of course, not all the delegates could go on all these trips. The working schedule kept most delegates busy from 9 o'clock in the morning until 6 o'clock in the evening.



Yugoslav Information Center
Opatija, Yugoslavia—IEC's 1953 site

The principal speaker at the banquet, held in the Grand Salon of the Hotel Kvarner at Opatija, was M. Blazevic, whose position was equivalent to that of minister of National Economy. The mayors of Rijeka and Opatija gave receptions for the delegates. The director of the Adriatic Steamship Line and others took an active part in arranging the program of entertainment.

After the meetings, the "Partizanka," the finest ship of the Adriatic Line, was given over for the exclusive use of the delegates for a three-day cruise along the Dalmatian Coast, from Rijeka to Split and Dubrovnik and return.

As for the policy-making Committee of Action, it worked on a long agenda which resulted in a number of important decisions.

One problem before the Committee was raised because of the serious illness (and subsequent death) of the long-time General Secretary of the Commission, Mr Charles Le Maistre. Mr Le Maistre had been active in staff

work for IEC since it was first organized nearly 50 years ago. It was recognized that no one man would be able to replace him. Mr Louis Ruppert, Administrative Secretary, is responsible for the operations of the headquarters office in Geneva. To assist him Dr Max Schiesser, immediate past president, was named Deputy to the President. Dr Schiesser, managing director of Brown Boveri Company in Baden, Switzerland, will partially retire this Fall. He will then be free to visit the office in Geneva frequently, and to advise Mr Ruppert on questions of policy and administration that require immediate action and therefore cannot be referred to the President of IEC in the USA. Dr Schiesser will have at his disposal an expense account. This he can use when he finds it necessary to request vice-presidents of IEC or specialists in any field to carry out specific missions on behalf of the Commission. Dr Schiesser will head up this activity but will bring into it anyone who is available to help with a particular question.

Another problem was due to the desire of the National Committees for an increased level of work on standardization projects. This places an added burden of work on the technical committees, and in turn on the personnel of the headquarters office who serve the technical committees. During the past year the office staff has had to inform a number of technical committees that it was impossible to carry out additional assignments. In order to provide personnel to help meet these increasing demands and to give the present staff modest salary increases, it was agreed to raise the dues of member organizations 20 percent.

The Fiftieth Anniversary of IEC is scheduled to be held in Philadelphia in the Fall of 1954. Because of the currency situation, it may be difficult for some delegates of foreign national committees to attend this meeting. Therefore, officers of IEC and of the United States National Committee have been in touch with representatives of the Mutual Security Administration (now the Foreign Operations Administration), to determine in what

way help can be made available through that agency or other technical assistance agencies.

Special plans have been made to celebrate at the Philadelphia meetings the fiftieth anniversary of the IEC. These plans are being worked out by an international group of the leaders in the work of the Commission. One day will be devoted to general meetings at which a number of addresses will be given by internationally known personalities on various aspects of the development of electrical science and technology, its relation to international standardization, and its importance in connection with international trade and international relations generally. M. P. Ailleret, director, Electricité de France, and President of the French National Committee of the IEC, has accepted the invitation to give the address covering the development of electrical power throughout the world.

It is indeed gratifying that the activity of IEC committees is developing so rapidly, as evidenced by the technical committee meetings in Yugoslavia. Almost the entire field of electrical technology and the electrical industry is now covered by some phase of the IEC work.

These meetings emphasized again to many of us a point that we know but sometimes forget. This is the fact that the electrical industry holds a key position in the economic welfare of the world today. They also emphasized the importance of international recommendations that stimulate the use of electricity by tending to unify standards and practices throughout the world.

Despite the present poverty of their country, the Yugoslav engineers and professional men and women we met were enthusiastic about the possibilities for their country's future. Their present economic organization is an experimental one, they say. Their new constitution with its resulting move toward decentralization they see as a step in the right direction. They are looking forward eagerly and with enthusiasm to helping Yugoslavia to a better economic future, with the development of electrical power as a primary key to prosperity.

WORLDWIDE ACTION on ELECTRICAL PROBLEMS

by R. C. Sogge

President, U. S. National Committee

ITS meetings at Opatija, Yugoslavia, June 21 to July 5, were among the most successful yet held by the International Electrotechnical Commission. As President of the U.S. National Committee, I can speak for the entire U.S. delegation when I say we greatly appreciated the efforts of the Yugoslav National Committee in providing such excellent facilities for the meetings. Unusually fine were the arrangements that made it possible to attend related meetings without conflicts. The room facilities were also excellent.

Many of the general features of the meetings, at which 315 delegates were present from 17 countries, have been described by IEC President H. S. Osborne (page 293).

The delegation of the USNC at the Opatija meetings consisted of 15, including all its officers, as follows:

R. C. Sogge, General Electric Company,
President, USNC

P. H. Chase, Philadelphia Electric Company,
Vice-President, USNC

Vice Admiral G. F. Hussey, Jr.,
American Standards Association,
Treasurer, USNC

J. W. McNair,
American Standards Association,
Secretary, USNC

L. J. Berberich, Westinghouse Electric Corporation

C. C. Chambers, University of Pennsylvania
V. M. Graham, Sylvania Electric Products,
Inc.

M. H. Hobbs, Westinghouse Electric Corporation

E. M. Hunter, General Electric Company
J. F. McClenahan, General Electric Company
B. Lazich, Westinghouse Air Brake Company
Leon Podolsky, Sprague Electric Company
August Schmidt, Jr., General Electric Company

E. F. Seaman, Department of the Navy
H. P. Westman, International Telephone and Telegraph Company

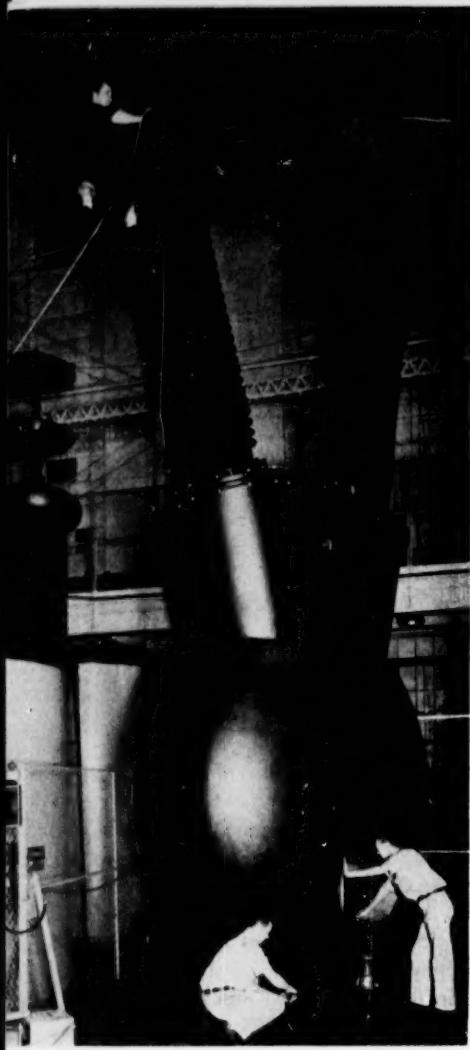
General

The Committee of Action serves as the Executive Committee of the IEC and is charged with administering its affairs, both financial and technical.

The meeting in Opatija was a long one and had many matters of policy before it. An increase of 20 percent was voted in the dues for all National Committees whose present dues exceed 3,000 Swiss Francs per annum. (This increase is an indication of the increase in the work of the Commission.) Final arrangements were made in connection with the 1954 meetings in Philadelphia, and the invitation of the British National Committee to hold the meeting in Great Britain in 1955 was accepted. Questions considered included the degree of agreement between the national standards of the different Member Countries and the corresponding IEC standards; obstacles to international trade formed by regulations concerning electrical equipment; inclusion of references to tropical and subtropical atmospheric conditions; and harmonization of IEC work with that of other international organizations such as the International Commission on Illumination. All of these were studied with care.

A proposal by the United States concerning cooperation between IEC Technical Committee 29 on Electro-Acoustics and ISO Technical Committee 43 on Acoustics was accepted and passed on to the ISO for its acceptance. This proposal makes IEC/TC 29 responsible for all electro-acoustic standards, while ISO/TC 43 is confined, for the present, to questions of standards of musical pitch. (This proposal was accepted by the ISO Council, see Admiral Hussey's report, page 299.)

Some measure of the increased activity of the Commission during the year is the fact that six international recommendations were either printed or are in the course of being printed; 19 international recommendations were circulated to the member countries for approval under the Six Months' Rule, and five additional



General Electric Co

documents were reviewed under the Two Months' Rule.

Plans for the Fiftieth Anniversary Jubilee Meeting of the IEC in Philadelphia in September 1954 are well in hand under the guidance of the general committee whose chairman is P. H. Chase of the Philadelphia Electric Company.

NOTE: The Six Months' Rule covers a letter ballot procedure whereby all of the member countries must vote on a proposed recommendation within six months. To be approved, an IEC Recommendation must obtain a five-sixth affirmative vote. If objections and criticisms are received under the Six Months' Rule balloting, these are referred back to the originating technical committee for adjustment. The adjusted document is then sent to the National Committees for letter ballot under a two month time limit.

Technical Work

Thirty-eight technical committees of IEC are now working on international electrical standardization problems. Members are the representatives

This huge single-phase unit is a part of one of the first circuit breakers in the world to have the high interrupting rating of 15 million kva. It was designed for a new 330 kv transmission network. International recommendations on power circuit breakers are being developed by IEC/TC 17.

of the National Committees of the member countries. Draft proposals are circulated to these national committees for action. Committees of Experts are *ad hoc* committees assigned to prepare draft recommendations on a specific subject or subjects. Accomplishments of the Technical Committees and Committees of Experts which met in Opatija are briefly summarized below.

Graphical Symbols (Technical Committee 3)

The Committee of Experts of TC 3 met on June 22, 23, and 25, 1953. Representatives of 11 countries participated.

Action was taken on symbols for rotating machines and transformers. Preliminary discussions covered problems involved in preparing a report on the various types of circuit diagrams used in the electrical power

One of the standard tests for high-frequency coaxial cables is a check of the electrical breakdown strength of the plastic jacket. Test is made in cabinet on table. A new subcommittee is to start international work on high-frequency cables (TC 12).

field. A subcommittee was appointed to draft a report for further action by the Committee of Experts.

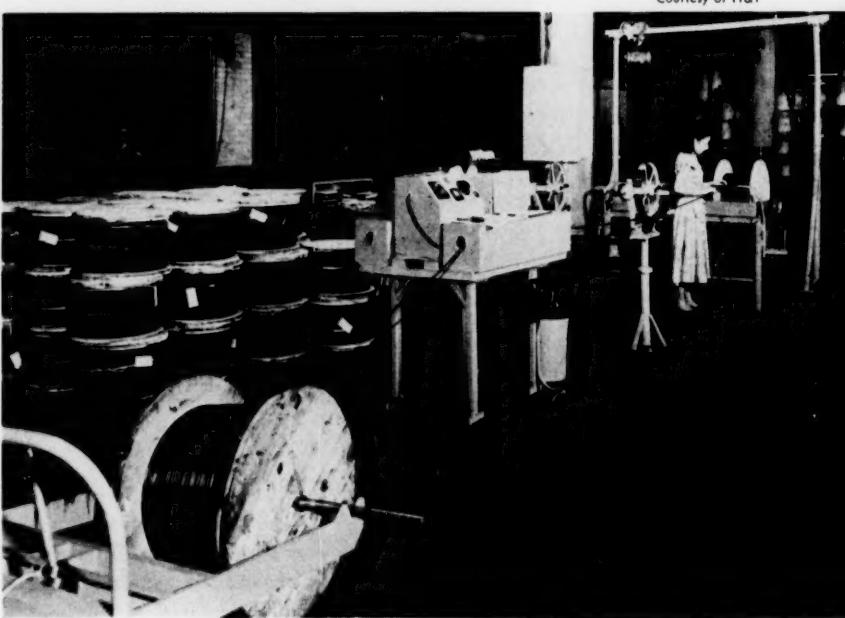
Radio-Communication (Technical Committee 12)

Work was completed on a color code for ceramic capacitors and on a specification for fixed paper capacitors. These will be submitted to the National Committees for final approval by letter ballot under the Six Months' Rule. A new subcommittee to deal with the standardization of high-frequency (coaxial) cables and high-frequency connectors was authorized.

Insulating Materials (Technical Committee 15)

Dr R. Vieweg of Germany was appointed chairman of TC 15 with the understanding that he and the Secretariat will study the best means of organizing the work on a more practical basis. Special attention is to be given to proper liaison with other Technical Committees concerned with insulation.

The Committee of Experts which has been working for several years under the chairmanship of E. F. Seaman will continue its work under Mr Seaman's chairmanship. Considerable



Courtesy of IT&T

progress was made on specific questions of insulation, and agreement was reached on several tentative testing methods. Much other work on the subject of insulation was assigned to the various National Committees for completion before the next meeting of TC 15.

Switchgear and Control Gear (Technical Committee 17)

The English title of this committee was changed from "Switchgear" to "Switchgear and Control Gear" since the scope of the committee covers control gear. Work was completed on Chapter 2, Part 2, of the IEC Specification for A-C Circuit Breakers. This covers Rules for Normal Load Conditions. Work was also completed on Recommendations for the Unit Testing of Circuit Breakers for Making and Breaking Capacity as a supplement to Chapter 1. These will be submitted to the National Committees for approval by letter ballot under the Six Months' Rule.

TC 17 is preparing, chapter by chapter, a comprehensive specification for a-c power circuit breakers for world-wide use.

Electric Cables (Technical Committee 20)

Agreement was reached on a draft specification for tests on impregnated paper-insulated lead-covered cables for voltages of 10 kv to 66 kv which is to be circulated to the National Committees for approval under the Six Months' Rule. The USNC did not have a delegate present at this meeting.

Power Converting Equipment (Technical Committee 22)

Subject to final modification by an Editorial Committee, a draft IEC Specification for Ionic Converters was agreed to for approval by letter ballot of the National Committees under the Six Months' Rule. The USNC delegate reports that it was the desire of many of the delegates to have an international recommendation which would serve both as an international standard and as a national standard for their countries. An early meeting of the USNC Advisory Group, which is the ASA Sectional Committee on Mercury-Arc Rectifiers, C34, is planned so that these recommenda-



Westinghouse Electric Corp

Typical starters for fluorescent lamps on which standardization work is being done both in USA (ASA Committee C78) and by IEC/TC 34.

tions may be given final study by the representatives of the various groups in the United States concerned with power rectifiers.

Electric and Magnetic Magnitudes and Units (Technical Committee 24)

The Committee of Experts gave consideration to a resolution which it is suggesting for adoption by Technical Committee 24 at its next meeting.

This proposed resolution confirms the adoption by IEC of the Giorgi system of units, and recommends that the electromagnetic field equations be rationalized. It also recommends a method of rationalization and lists the principal equations characterizing its recommended method.

The proposed resolution is to be studied by the National Committees before action by TC 24. (For the text of the proposal see page 302. Comments should be sent to Dean C. C. Chambers, Moore School of Engineering, University of Pennsylvania, Philadelphia.)

The committee has also arranged to meet in Paris in October 1953 to discuss a specific method of change from non-rationalized units to rationalized units, in accordance with the resolution.

Consideration was given to the possibility of adopting the name "Tesla" in honor of the distinguished Yugoslav scientist, Nicola Tesla, to indicate the ampere turns per meter. This proposal was made by the Yugoslav National Committee and was referred to the National Committees for their opinion.

Letter Symbols (Technical Committee 25)

The Experts Committee of TC 25 gave consideration to various matters

preparatory to the next meeting of the main Technical Committee, scheduled to be held at Philadelphia in 1954. Some of the matters which will be on the agenda for the Philadelphia meeting are letter symbols for units, decimal multiples and parts of units, instantaneous and peak values of electrical quantities which vary with time, some of the quantities of mechanical circuits for dynamic moment of inertia and geometric moment of inertia, and letter symbols to be used in the field of electronics. Consideration is also to be given to means for indicating complex vector and tensor quantities. The Secretariat, the U.S. National Committee, will prepare draft reports which will take into consideration all the present documents for action at the Philadelphia meeting. It was agreed that mathematical signs come within the scope of the committee.

Lamps and Related Equipment (Technical Committee 34)

The title and scope of this committee was changed from simply "Lamps" to include related equipment such as holders used with lamps, and starters and ballasts used with electric discharge lamps.

The scope was also modified to make it clear that the committee is responsible for electric lamps of all types, both incandescent and electric discharge lamps, and this related equipment.

Further work was done on a new document covering tubular fluorescent lamps. This draft is a further elaboration of an earlier draft to which the USNC objected. However, at the meeting a great many of the proposals of the USNC were incorporated. The USNC delegate pointed out that there

are many minor points of difference between practices in the United States and those of European countries in which there will probably never be agreement due principally to differences in methods of measurement.

The committee gave a great deal of consideration to the subject of colors and color ranges for fluorescent lamps. Much progress was made toward an international understanding on this difficult subject. The proposals which were made and accepted at the meeting were expected to be of a temporary nature and should not prohibit progress in evaluating color renditions in a more suitable way.

Consideration was given to ballasts for fluorescent lamps which will supersede an earlier document to which the USNC had a number of objections. An Editing Committee will place the new document in form for circulating to the National Committees for letter ballot on approval under the Six Months' Rule.

Work was done on standardization of starters for fluorescent lamps, standardization of the dimensions of ballasts, and methods of measurement of fluorescent lamps. Further work will be done on these subjects by subcommittees of TC 34.

This test set is used to measure automatically interelectrode capacitances of electronic tubes. The basic circuits used are included in American Standard C60.5-1952 which will be submitted to the International Electrotechnical Commission for international standardization (TC 39).

Westinghouse Electric Corp



A new subcommittee to cover lighting fittings was set up to work in close collaboration with the International Commission on Rules for the Approval of Electrical Equipment (CEE) in the preparation of a specification for lighting fittings for tungsten filament lamps on which the CEE is already at work.

Lightning Arresters (Technical Committee 37)

The Committee of Experts met for two days and gave detailed consideration to the second draft of the specification for lightning arresters of the type incorporating non-linear resistors.

Considerable progress was made with the sections dealing with definitions, ratings, and method of test. Provisional agreement was reached on some of the test values, but further consideration must be given to values of residual voltage.

The committee agreed to carry on as much work as possible by correspondence and to hold a further meeting of the Committee of Experts in Philadelphia in 1954 and also a meeting of the full membership of TC 37 if the progress by correspondence warrants it.

Electronic Tubes (Technical Committee 39)

A new scope for this project was approved, giving the committee responsibility for all electronic tubes, except x-ray tubes, as well as responsibility for solid-state devices such as crystal diodes, transistors, and the like. The committee is responsible both for the electrical and mechanical characteristics of these devices as well as the holders in which they are used.

Further consideration will be given to the dimensions of electronic tube and valve outlines which were previously circulated under the Six Months' Rule. Additional work was done on this document which will be circulated again for further consideration by the National Committees.

The committee gave consideration to other matters, such as gaging practice for tube bases, measurement of the characteristics of tubes, minimum published data for tubes, all of which will be subject to further consideration both by mail and at the next meeting of the committee.

Other Meetings

In addition to those at Opatija, meetings of two other technical committees were held this year.

Electric Traction Equipment (Technical Committee 9)

Meetings of TC 9 were held at Interlaken, Switzerland, June 8 to 11, 1953. Thirty-two representatives of eight countries and the Central Office attended this meeting. The United States was represented by Charles Kerr, Jr., of the Westinghouse Electric Corporation. Consideration was given to revision of the IEC Rules for Electric Traction Motors (Publication 43, 1950), a draft Specification for Electrical Equipment on Rolling Stock, and a draft Specification for Auxiliary Machines on Rolling Stock.

Electro-Acoustics (Technical Committee 29)

TC 29 met at The Hague, June 11 to 13, 1953. Those present were:

Dr L. L. Beranek, Massachusetts Institute of Technology, chief delegate

R. K. Cook, National Bureau of Standards

Dr R. O. Fehr, General Electric Company

H. S. Knowles, Industrial Research Products

J. W. McNair, American Standards Association

Dr R. W. Young, U. S. Navy Electronics Laboratory

Council Actions Advance Work of ISO

by Vice Admiral G. F. Hussey, Jr (USN, Ret)

Managing Director, American Standards Association;
ASA Representative, ISO Council

THE Council of the International Organization for Standardization met at the organization's headquarters in Geneva from July 7 to 10 with all members of the Council present except for the Member Body from Canada, the Canadian Standards Association. This meeting was the first held under the presidency of Dr Hilding Törnebohm of Sweden who became president of ISO on January 1 last. Also in office for the first time was Mr Willy Ruggaber of Switzerland who succeeded Mr Max Reichert of Belgium as treasurer.

Because the statement of its "scope" can have an important influence on the extent of a committee's work, considerable time was devoted to the question of scopes and titles for the various ISO Technical Committees with progress evidenced toward a satisfactory presentation of scopes. The Council noted, however, that there is still more work to be accomplished in this field.

The most important single steps taken were approval of two draft ISO Recommendations — No. 7 on Preferred Numbers was approved as ISO Recommendation 3; No. 9, International Code for the Abbreviation of Titles of Periodicals — a matter of considerable significance to librarians and bibliographers — was approved as ISO Recommendation No. 4.

One Technical Committee, TC 40 on Upholstery Materials in which there was insufficient interest, was abolished.

Three proposed projects were authorized and new Technical Committees designated as: TC 78, Aromatic Hydrocarbons, Secretariat, United Kingdom Member Body, BSI; TC 79, Light Metals and Their Alloys, Secretariat, French Member Body, AFNOR; TC 80, Safety Colors, Secretariat, The Netherlands Member Body, HCNN. After some discussion as to



the possibility of improving the structure of the Technical Committees of ISO, it was decided to appoint a Planning Committee, consisting of Mr Binney, United Kingdom; Admiral Hussey, USA; General Salmon, France; and Dr Verman, India, to examine the matter and to report at the next meeting of the Council.

The Council joined with the Committee of Action of IEC in a step to

improve coordination between ISO Technical Committee 43 on Acoustics and IEC Technical Committee 29 on Electro-Acoustics, agreeing that the two committees should meet concurrently and that for the present IEC/TC 29 should limit its activity to musical pitch.

As a step to facilitate the payment for standards purchased from one Member Body by another, arrangements were made to establish a fund at ISO headquarters through which special payments may be made.

The Committee on Directives devoted several sessions to means of improving the Directives which govern the work of ISO Technical Committees. In particular, it recommended that in consideration of draft ISO Recommendations, Member Bodies should have an additional option

REPRESENTATIVES of ten national standards bodies are members of the Council that governs the business of the International Organization for Standardization. They represent Brazil, Canada, Denmark, France, India, Italy, Switzerland, United Kingdom, USA, USSR.

The Council supervises the work of technical committees, approves the scope of work the committees are to undertake, assigns secretariats, and takes final action on ISO Recommendations.

To date, since its meeting in June, four Recommendations have been approved for use by ISO members with the object of cutting down differences among national standards. These are: Designation of Twist Direction for Textile Yarns, ISO Recommendation 1; Reference Temperature, ISO Recommendation 2; Preferred Numbers, ISO Recommendation 3; International Code for the Abbreviation of Titles of Periodicals, ISO Recommendation 4.

Vice Admiral G. F. Hussey, Jr, managing director of the American Standards Association, was ASA's delegate to the 1953 meeting of the Council. Other delegates were: M. A. Sinay Neves, (Brazil); H. E. Glahn, (Denmark); L'Ingenieur General P. Salmon, M. J. Birlé, M. R. Tavernier (France); Dr Lal C. Verman (India); Dr C. Rossi (Italy); M. W. Ruggaber, M. W. Kuert (Switzerland); H. A. R. Binney (United Kingdom); M. I. G. Kourakov, M. N. W. Zassoursky (USSR).

Officers of ISO are: Dr Hilding Törnebohm, vice-president and technical director of SKF Industries, Göteborg, Sweden. President and ex-officio a member of the Council; Dr Lal C. Verman, Director, Indian Standards Institution, Vice-President; Willy Ruggaber, President, Swiss Standardization Commission, Treasurer; Henry St Leger, General Secretary.

placed before them so that they may indicate that there is no objection to the approval of a draft ISO Recommendation. A safeguard was placed about this, since "no objection" votes are to be counted as votes in the affirmative, by specifying that if the number of negative votes equals two-thirds of the number of positive votes, a draft ISO Recommendation can not be adopted by counting "no objection" votes in the affirmative.

The term of the Danish Member Body on the Council expiring at the end of this year, the Council elected Mr Kurakov, the delegate from the USSR Member Body, to succeed Mr Glahn on the Supervisory Committee which advises the President on the operation of the headquarters.

The Treasurer reported the finances in a satisfactory situation and it was a source of gratification to all that the General Secretary had been able to keep expenses well below the amount budgeted, thus providing a welcome addition to the reserve fund.

The perplexing question of the official languages of ISO had been considered through the year by the Special Committee on Official Languages appointed by the President at the Council meeting in New York in 1952. This question had been brought to a head by the adoption of an amendment to the Constitution placing upon the USSR Member Body the responsibility for translations and interpretations to and from the Russian. As a result of the committee's report, the Council recommended to the Member Bodies of ISO that the Constitution be amended by striking out the provision for Russian responsibility for the Russian language.

On the final day of the Council, the growing importance of ISO in the international organization field was evidenced by the presence of representatives from the Geneva offices of the United Nations, from the International Labor Organization, from the League of Red Cross Societies, and from the World Calendar Association. Each of these spoke of the cooperation between their headquarters and the General Secretary of ISO and outlined the impact of interna-

(Continued on page 319)

THE NEW NATIONAL

by Merwin Brandon

Vice-President, Underwriters' Laboratories; Chairman, NFPA Electrical Correlating Committee and NFPA Electrical Section.

AGAIN the "bible," of the electrical industry — the National Electrical Code — has been brought up to date. It appears in a new edition, again, as American Standard. For many years the Code has been nationally recognized as the authority for safe wiring practices in the United States and is the basic standard that controls electric wiring in most of the nation's buildings. It may well be the most generally accepted code in the United States. An American Standard since 1920, it has the distinction of being the first electrical project presented to the American Standards Association (at that time the American Engineering Standards Committee).

The outstanding fact about the forthcoming 1953 edition of the National Electrical Code is that, despite many controversial features, practically unanimous agreement was recorded for the final provisions.

The committee arrangement of the National Electrical Code differs considerably from the normal arrangement of ASA sectional committees in that each Code-Making Panel, instead of being a subcommittee of a main committee, is in itself balanced under ASA procedure and classified as a sectional committee. This is because the National Electrical Code is of such importance to our economy that speed in consideration of proposals is essential. Small, virtually autonomous committees representing all the diverse divisions of the electrical industry can obtain this speed much more readily than a large committee which must receive and act upon reports of various subcommittees.

This unusual arrangement of the National Electrical Code Committee was worked out after years of experimenting with various arrangements and appears to provide both for the thorough consideration of proposed

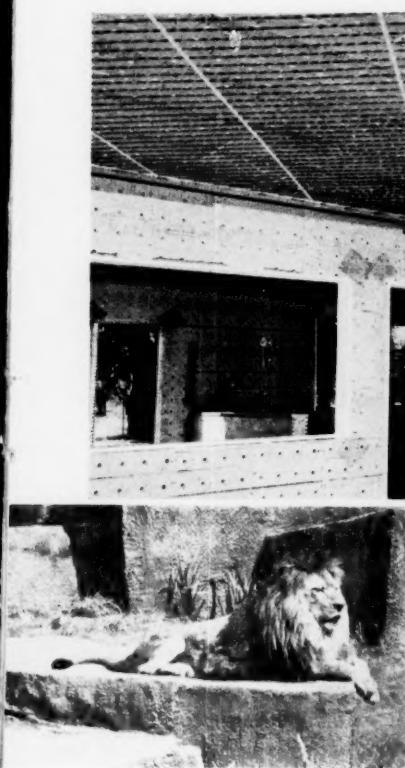
changes by all interested groups in the electrical industry and for promptness of decision consistent with this consideration.

The ASA review and approval of the National Electrical Code is the final step in a series of steps under the procedure of the National Fire Protection Association, which sponsors the National Electrical Code Committee. The Code-Making Panels, each having jurisdiction over one or more articles of the Code, receive proposals for changes in or additions to the existing Code and render a preliminary report. This is widely disseminated by the National Fire Protection Association and by the technical press. These preliminary reports are thereby made available for a period of many months for study and comment by everyone interested. The Code-Making Panels then review the proposals and the comments regarding them and prepare a final report. All of this is done under the guidance of the Correlating Committee that has power to refer back and to correlate, but not to make basic changes. The final reports are published by the National Fire Protection Association for review prior to their Annual Meeting and are discussed at that Annual Meeting. If accepted, the reports are then incorporated in the new Code, which is published by the National Fire Protection Association and the National Board of Fire Underwriters. Prior to publication, the NFPA, as sponsor, submits the changes to the American Standards Association for approval as an American Standard.

While the importance of the various changes in the National Electrical Code is probably determined by the individual interest of the reviewer, some of the more important changes in the forthcoming Code are briefly mentioned below.

Fluorescent lighting on 277-volt circuits, used on an emergency basis dur-

ELECTRICAL CODE



Photos, L. N. Roberson Co., permission of
The Seattle Times

warm even in cold weather. Above (right), for home heating, a panel of electric resistance cable is fastened to rock lath, then plastered over.

ing the War but never recognized in the National Electrical Code for peace-time use, is now provided for in Section 2113 of the new Code. This development has enormous possibilities for the future, making it possible to realize substantial savings in copper and consequently making possible considerable reductions in financial outlay for this heavy-duty lighting.

Electric clothes dryers, under specific limitations, are permitted to be grounded by connection to the grounded circuit conductors, as ranges have been for some years. This is covered in Section 2560 of the Code. Utilities are strongly in favor of this type of grounding for all fixed electrical equipment. This change recognizes the increasing use of this type of equipment.

A new type of wiring material, known as mineral-insulated metal-sheathed cable, Type MI, is covered

in a new Article 330. This type of wiring material, used originally in France and on certain ocean-going vessels, has only recently been put on a mass production basis in this country.

New types of nonmetallic-sheathed cable for use in moist or corrosive locations are included in Section 3362. These have been developed because of difficulties experienced with braided or cotton-covered cable in cold and moist areas, such as Canada and the northern United States, where condensation has frequently resulted in destruction of the cable. The new types of cable now recognized in the Code have overcome this difficulty successfully.

A new type of underground feeder and branch circuit cable is covered in Article 339.

A new article has been added on multi-outlet assemblies, Article 353.

This is a clarification rather than an important expansion of the Code provisions, since this type of assembly has previously been mentioned in other sections of the Code. This new article brings together in one place all provisions dealing with multi-outlet assemblies.

Electric space heating equipment is covered for the first time. This type of equipment, although comparatively new, is becoming more and more widely used, and these new Code provisions recognize its increasing importance in the building field. The requirements for this equipment will be found in Article 422.

Divergent provisions for electrical equipment in aircraft hangars issued by the NFPA Section on Aircraft Hangars and the National Electrical Code Committee have been coordinated in Article 510. A joint committee of these two groups worked out provisions satisfactory to both for inclusion in the new edition of the Code.

Article 620 on elevators has been considerably revised and brought up to date, clarifying many of the provisions that heretofore have been ambiguous in light of present day practice and have resulted in delay in approval of equipment by electrical inspectors.

Article 700 on emergency lighting systems has also been completely revised and is now more in line with NFPA requirements on exit lighting.

Designations on flexible cords have been modified in accordance with complete changes in nomenclature on the part of the flexible cord industry. These changes, in accordance with the recently approved American Standard on Flexible Cord and Fixture Wire, C33.1-1953, will be found in Article 400 and Table 31 in Chapter 10.

Sealed hermetic-type refrigeration compressor motors have been covered by specific requirements in Article 430. Addition of these requirements recognizes the significant advances made in the use of hermetic-sealed motors in recent years.

Plastic jars for storage batteries are recognized for the first time in Article 480, along with glass, rubber, and composition enclosures.

(Continued on page 319)

IEC Experts Invite Comment on Electromagnetic Equations

Text of the resolution approved by the Experts Committee of Technical Committee 24 on Electric and Magnetic Magnitudes and Units at their Opatija meeting.

I — The IEC, confirming the adoption of the Giorgi System of units, recommends also that the electromagnetic field equations be rationalized.

II — The method of rationalization of the electromagnetic field equations recommended by the IEC is characterized by the following principal equations of which the form remains the same, whether the letter symbols are interpreted as representing the physical quantities coming into play, or their measures and by the relations which follow, which give the values of absolute permeability and permittivity (absolute dielectric constant) in vacuo.

$$\oint H \, ds = \sum I$$

$$\Phi = \iint B \, dA$$

$$B = \mu_0 H$$

$$\mu_0 = 4\pi \times 10^{-7} \text{ H/m}$$

$$\epsilon_0 = \frac{1}{c^2 \mu_0} = 8.85 \times 10^{-12} \text{ F/m}$$

$$\iint D \, dA = \sum Q$$

$$\Psi = \iint D \, dA$$

$$D = \epsilon E$$

These equations are for the condition when the medium is isotropic. The total current ($\sum I$) includes, in the general case, the displacement current.

The corresponding units are those of the Giorgi System, the metre for the arc ds , the ampere for the current I , the ampere per metre for the magnetic field strength H , the weber for magnetic flux Φ , etc. These quantities are defined in the second edition of the International Electrotechnical Vocabulary. Their symbols are contained in the Table of IEC Publication No. 27, 1953 Edition.

Provisional Note.—The definitions as referred to are at present provision-

Terms	Symbols	Numbers
Magnetic field strength (magnetic intensity)	H	05-25-025
Electric current	I	05-20-035
Magnetic flux density	B	05-25-035
Magnetic flux	Φ	05-25-040
Absolute permeability	μ	05-25-050
Electric flux density (displacement)	D	05-15-135
Electric charge	Q	05-15-010
Electric flux	Ψ	
Permittivity	ϵ	05-15-125
Electric field strength (electric intensity)	E	05-15-050

ally given in the document 1 (Secretariat) 230, draft of the group O5 of the second edition of IEC Vocabulary.

Explanatory note.—The above tables and letter symbols correspond to those in IEC Publication No. 27 "International Letter Symbols used in connection with Electricity" and not to the titles in Document 1 (Secretariat) 230 which is at present pro-

visional and with National Committees for approval under the Six Months' Rule, when the titles (in English) and definitions will be corrected for the second edition of the IEC International Electrotechnical Vocabulary.

Note.—It is recommended that a definition for Electric Flux be added to the IEC Vocabulary.



Thomas D. Jolly (left), vice-president of the Aluminum Company of America and past president of the American Standards Association, was honored by the Association during a recent meeting of its Board of Directors at Pittsburgh. Here, he receives a citation from Roger E. Gay, ASA president. The award was presented to Mr Jolly by the Association in recognition of his "statesmanship and vision in advancing the development and use of voluntary standards as instruments of free enterprise."

ASTM Accepts 63 New Materials Specifications

At the 1953 Annual Meeting of the American Society for Testing Materials, held June 28-July 3 at Atlantic City, 72 of the Society's technical committees reported, with

the result that 63 new specifications and tests were approved. All of these new tentatives will be published later in the year in the 1953 Supplement to the Book of ASTM Standards.

NOTE: Copies of all new ASTM specifications will be available at a later date from ASTM Headquarters, 1916 Race Street, Philadelphia 3, Pa. at a nominal charge, usually 25 cents each, but slightly higher on standards over 16 pages.

New Tentatives and Designations of Technical Committees Responsible for the Various Items

STEEL (A-1)

Specifications for:

Cold-Rolled Carbon Steel Deep-Drawing Sheet, Special Killed for Miscellaneous Drawn or Severely Formed Parts (A 365-53 T).

Cold-Rolled Carbon Steel Sheet, Commercial Quality (A 366-53 T).

Methods and Definitions for:

Mechanical Testing of Steel Products (A 370-53T).

CAST IRON (A-3)

Methods of:

Chill Testing of Cast Iron (A 367-53T).

IRON-CHROMIUM, IRON-CHROMIUM-NICKEL, AND RELATED ALLOYS (A-10)

Specification for:

Stainless Steel Wire Strand (A 368-53 T).

WIRE FOR ELECTRICAL CONDUCTORS (B-1)

Method of:

Test for Stiffness of Bare Soft Square and Rectangular Copper Wire for Magnet Wire Fabrication (B 279-53 T).

COPPER AND COPPER ALLOYS, CAST AND WROUGHT (B-5)

Specifications for:

Seamless Copper Tube for Refrigeration Service (B 280-53 T).

ELECTRODEPOSITED METALLIC COATINGS (B-8)

Recommended Practice for:

Preparation of Copper and Copper-Base Alloys for Electroplating (B 281-53T).

METAL POWDERS AND METAL POWDER PRODUCT (B-9)

Specifications for:

Sintered Metal Powder Structural Parts from Brass (B 282-53 T).

CEMENT (C-1)

Method of:

Mechanical Mixing of Hydraulic-Cement Mortars of Plastic Consistency (C 305-53 T).

CHEMICAL-RESISTANT MORTARS (C-3)

Methods of:

Test for Compressive Strength of Resin Type Chemical-Resistant Mortars (C 306-53 T).

Test for Tensile Strength of Resin Type Chemical-Resistant Mortars (C 307-53T).

Test for Working and Setting Times of Resin Type Chemical-Resistant Mortars (C 308-53 T).

CONCRETE AND CONCRETE AGGREGATES (C-9)

Specifications for:

Liquid Membrane-Forming Compounds for Curing Concrete (C 309-53T).

Methods of:

Test for Resistance of Concrete Specimens to Slow Freezing in Air and Thawing in Water (C 310-53 T).

Testing Fly Ash as an Admixture for Portland Cement Concrete (C 311-53 T).

THERMAL INSULATING MATERIALS (C-16)

Recommended Practice for:

Clearance of Preformed Thermal Pipe Insulation (C 312-53T).

PORCELAIN ENAMEL (C-22)

Methods of:

Test for Adherence of Porcelain Enamel and Ceramic Coatings to Sheet Metal (C 313-53 T).

Test for Warpage of Porcelain Enameled Flatware (C 314-53 T).

PAINT, VARNISH, LACQUER, AND RELATED PRODUCTS (D-1)

Specifications for:

High-Gravity Glycerine (D 1257-53 T).

Methods of:

Sampling and Testing High-Gravity Glycerine (D 1258-53 T).

Test for Nonvolatile Content of Resin Solutions (D 1259-53 T).

Test for Calculating Small Color Differences on the Hunter Multipurpose Reflectometer (D 1260-53 T).

PETROLEUM PRODUCTS AND LUBRICANTS (D-2)

Methods of:

Test for Effect of Grease on Copper (D 1261-53 T).

Test for Lead in New and Used Greases (D 1262-53 T).

Test for Leakage Tendencies of Automotive Wheel Bearing Grease (D 1263-53T).

Test for Water Washout Characteristics of Lubricating Greases (D 1264-53T).

Sampling Liquefied Petroleum Gas (D 1265-53 T). (Jointly with Committee D-3).

Test for Sulfur in Petroleum Products and Liquefied Petroleum Gases by the $\text{Co}_2\text{-O}_2$ Lamp Method (D 1266-53T).

Test for Vapor Pressure of Liquefied Petroleum Gas (D 1267-53 T).

Test for Unsaturated Light Hydrocarbons (Silver-Mercuric Nitrate Absorption) (D 1268-53 T).

Test for Polarographic Determination of Tetraethyllead in Gasoline (D 1269-53T).

GASEOUS FUELS (D-3)

Method of:

Sampling Liquefied Petroleum Gases (D 1265-53 T). (Jointly with Committee D-2).

PAPER AND PAPER PRODUCTS (D-6)

Method of:

Test for Dimensional Changes of Paper with Changes in Moisture Conditions (D 1270-53 T).

WOOD (D-7)

Specifications for:

Copperized Chromated Zinc Chloride (D 1271-53 T).

Pentachlorophenol (D 1272-53 T).

Methods of:

Chemical Analysis of Copperized Chromated Zinc Chloride (D 1273-53 T).

Chemical Analysis of Pentachlorophenol (D 1274-53 T).

ELECTRICAL INSULATING MATERIALS (D-9)

Method of:

Test for Corrosive Sulfur in Electrical Insulating Oils (D 1275-53 T).

SHIPPING CONTAINERS (D-10)

Method of:

Test for Water Vapor Permeability of Shipping Containers by Cycle Method (D 1276-53 T).

RUBBER AND RUBBER-LIKE MATERIALS (D-11)

Specifications for:

Non-Rigid Thermoplastic Compounds for Automotive and Aeronautical Applications (D 1277-53 T).

Method for:

Determining Harmful Dirt in Crude Natural Rubber (D 1278-53 T).

SOAP AND OTHER DETERGENTS (D-12)

Method of Test for:

Buffering Action of Metal Cleaners (D 1279-53 T).

Total Immersion Corrosion Test for Soak Tank Metal Cleaners (D 1280-53 T).

Rinsing Properties of Metal Cleaners (D 1281-53 T).

Analysis of Sodium Bicarbonate (D 501-53 T).

TEXTILE MATERIALS (D-13)

Methods of:

Test for Average Fiber Diameter of Wool Tops by Porous Plug Tester (D 1282-53T).

Test for Alkali-Solubility of Wool (D 1283-53 T).

Test for Relaxation and Felting Shrinkage in Laundering of Stabilized Knit Wool Fabrics (D 1284-53 T).

Testing and Tolerances for Yarn Containing Wool (D 1285-53 T).

ADHESIVES (D-14)

Method of:

Test for Effect of Mold Contamination on Permanence of Adhesive Preparations and Adhesive Bonds (D 1286-53 T).

ENGINE ANTIFREEZES (D-15)

Method of:

Test for pH of Concentrated Engine Antifreezes (D 1287-53 T).

(Continued on Page 304)

(Continued from page 303)

INDUSTRIAL WATER (D-19)

Methods of Test for:

- Chemical Oxygen Demand (Dichromate Oxygen Demand) of Industrial Waste Water (D 1252-53 T).
- Residual Chlorine in Industrial Water (D 1253-53 T).
- Nitrate Ion in Industrial Water (D 1254-53 T).
- Sulfides in Industrial Waste Water (D 1255-53 T).

Scheme for:

- Analysis of Industrial Water (D 1256-53 T).

WAX POLISHES AND RELATED MATERIALS (D-21)

Method of Test for:

- Total Ash and Silica in Water-Emulsion Waxes (D 1288-53 T).

Nonvolatile Matter (Total Solids) in Water-Emulsion Waxes (D 1289-53 T). Sediment in Water Emulsion Waxes by Means of Centrifuge (D 1290-53 T).

METHODS OF TESTING (E-1)

Methods of:

- Test for Measuring Water Vapor Transmission of Materials in Sheet Form (E 96-53 T).

NON-DESTRUCTIVE TESTING (E-7)

Reference Radiographs of:

- Aluminum and Magnesium Castings (E 99-53 T).

APPEARANCE (E-12)

Method:

- Test 45-deg, 0-deg Directional Reflectance of Filter Photometry (E 98-53 T). (This method has been developed with Committees C-22, D-1, and D-6).



Report Reviews ASA-ASTM Relations

ASA-ASTM relations are reviewed in the 1953 Report of the Board of Directors of the American Society for Testing Materials. The report covers the two methods by which ASTM may submit recommendations to ASA: the sectional committee procedure; and the existing standards procedure, in conjunction with proprietary sponsorship. Under the latter, an existing ASTM standard is submitted to ASA with a supporting statement tracing the development of the standard and noting the degree of its acceptance. If the standard is approved as American Standard, ASTM is granted proprietary sponsorship to take care of future revisions. Use of the sectional committee method for ASTM standards submitted to ASA means that the standard is reviewed by a sectional committee consisting of representatives of the organizations concerned. ASTM is sponsor or co-sponsor for 147 sectional committees.

Between June 1952 and June 1953, the following standards were submitted to ASA under the existing standards procedure for approval as American Standard: Standard Specifications for Building Brick (Solid Ma-

sonry Units Made from Clay or Shale), ASTM C62-50; and Standard Specifications for Facing Brick (Solid Masonry Units Made from Clay or Shale), ASTM C216-50.

Thirty-one revised standards were submitted by ASTM under the proprietary procedure. These included one standard relating to malleable iron castings; nine relating to copper and brass materials; three relating to gypsum; nine relating to manufactured masonry units; four relating to rubber and rubber products; two relating to paint pigments; one relating to rosin; and two relating to soap.

ASTM is active on four ASA sectional committees which recently submitted standards to ASA Sectional Committee C7, Bare Electrical Conductors, recommended approval of revisions of 29 American Standards. Committee L14, Textile Test Methods, recommended the approval of revisions of 13 American Standards. Z11, Petroleum Products and Lubricants, recommended approval as American Standard of four ASTM Methods, and approval of revisions of 22 American Standards. All these standards have been approved.

A REPORT FOR THE CHEMICAL INDUSTRY

"World-wide trade, the keystone in national prosperity, is becoming increasingly dependent on international standards — mutual understanding from the technical, commercial, and legal viewpoints." This statement is contained in a study entitled "International Standardization and the Chemical Industry," prepared by the secretary of ASA's Chemical Industry Advisory Board. It states further: "To make no formal attempt to present our American side of the picture may eventually lead to a situation where international agreements among 30 or more closely allied foreign countries struggling to compete with American Know-How will permit the erection of what may prove to be, even to an industry as well established as the chemical, insurmountable barriers to the interchange of services and goods. Likewise, the content of the codes and standards developed abroad may be of very considerable import to those American companies having plants in foreign countries."

Covering ISO projects of importance to the chemical industry, the 11-page brief summarizes the reasons for, the channels, and the status of American participation on these ISO committees and lists the scope and achievements of each project. Of the 15 selected, the U.S. actively participates in less than half and has no status on two others. While some industrial, scientific, and governmental groups, such as the American Society for Testing Materials, maintain liaison with chemical groups here and abroad, ASA's Chemical Industry Advisory Board believes that its membership may be seriously handicapped by its limited cooperation in ISO. Through ASA, the U.S. member body of ISO, the American chemical industry could obtain information on foreign activities and could appoint or designate competent representatives on ISO committees to present American viewpoints.

Copies of the CIAB analysis are available from ASA.

STANDARDS

by Samuel P. Kaidanovsky

STANDARDIZATION IN MILWAUKEE, WISCONSIN

Purpose

The first of this series of monthly articles on new developments in standards, including specifications, item identification, and inspection and testing, in various levels of Government, dealt with Federal standards and specifications. The purpose of this article is to describe the work of the Purchasing Department of the City of Milwaukee in the standards field.

Central Board of Purchases of the City of Milwaukee

Source of Authority. — The Central Board of Purchases is authorized by State law, City ordinance, and legal interpretations to purchase or to provide for the purchase of all materials, supplies, equipment, and minor services for the use of all City departments, boards, and commissions under the control of the Common Council. The Board also has (1) supervisory control of all City storehouses; (2) direct control over the general municipal storehouse, petroleum plant, and delivery system, and the Central Reproduction Division and (3) charge of several other City activities. The Board prescribes purchasing policy and awards contracts.

Membership of the Board. — The Central Board of Purchases is composed of seven members: The President of the Common Council, the Chairman of the Common Council Finance Committee, the Commissioner of Public Works, the City Comptroller, the Superintendent of the Water Department, the Budget Supervisor, who is also the Secretary of the Board of Estimates, and a Secretary of the Board, who is elected annually by the Board. The by-laws provide that the Secretary may or may not be a member of the Board. The present Purchasing Agent, Mr Joseph W. Nicholson has held this position since 1918.

The Mayor is chairman ex-officio of the Board.

Executive Committee of the Board. — The Executive Committee of the Board consists of three Board members, appointed annually by the Mayor.

Standards and Specifications Committee of the Board. — The Standards and Specifications Committee is an operating unit of the Central Board of Purchases. The purpose of this Committee according to the by-laws of the Central Board of Purchases is "to simplify and standardize all materials, supplies and equipment for City use wherever practicable, in order that the quality of materials may be improved and purchases made on the basis of larger quantities, with resulting lower prices."

The Committee consists of the Commissioner of Public Works, who is a civil engineer, the Superintendent of Milwaukee Water Works, who is also a civil engineer, the City Comptroller, the Budget Supervisor and the City Purchasing Agent.

Purchasing Department

The Purchasing Department carries out the policies and procedures prescribed by the Central Board of Purchases. It is assisted by the Executive Committee and the Standards and Specifications Committee of the Board. The Purchasing Department is the centralized buying agency for approximately 50 departments, boards and commissions of the City of Milwaukee. It is headed by the City Purchasing Agent, who also serves as Secretary of the Central Board of Purchases. The Purchasing Department furnishes all commodities and services

Mr Kaidanovsky, Consulting Engineer, is former Chairman, Federal Interdepartmental Standards Council, technical consultant of the Federal Specifications Board, and editor of the STANDARDS WORLD.

needed by various agencies of the City in the required quality at the best possible price. The City Purchasing Agent directs the following divisions of the Purchasing Department: (1) Purchasing, (2) General Office, (3) Accounting, (4) Stores-Salvage-Inspection-Testing (Field Work) and (5) Forms Reproduction (Printing).

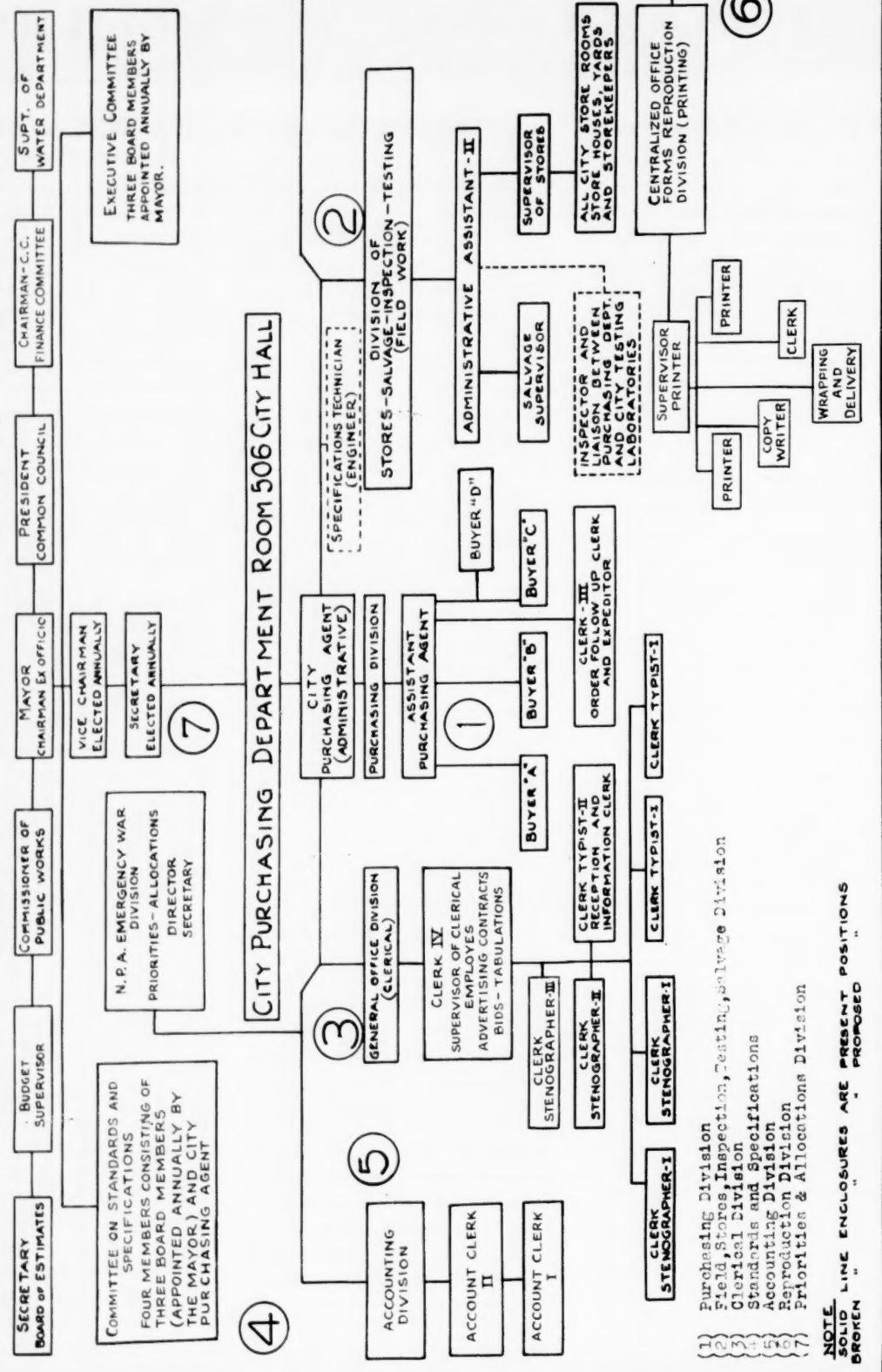
As Secretary of the Central Board of Purchases and member of its Standards and Specifications Committee, the Purchasing Agent plays a very important role in the development of standards and specifications for the City of Milwaukee.

Procedure for the Development of Standards and Specifications

Meetings of Standards and Specifications Committee. — The Standards and Specifications Committee meets on call of the Purchasing Agent and examines tentative specifications for the purchase of commodities. The examination is made at a formal meeting in the presence of the City department or departments and prospective bidders, who are given an opportunity to supply all information they believe pertinent to the preparation of a suitable specification. After the Standards and Specifications Committee completes its recommendations, they are transmitted to the Central Board of Purchases by the Secretary of the Board.

Criteria for the Approval of Specifications. — The following criteria are used for the approval of specifications: (1) Is the specification written in such a way that the product, supplied by the lowest responsible bidder, will be fully adequate and suitable for the intended purpose? (2) Is the specification so written that competitive bids can be obtained? If either of these two criteria cannot be met by the specifications such specifications are considered defective. (3) Does it

ORGANIZATION CHART CENTRAL BOARD OF PURCHASES AND DEPARTMENT OF PURCHASES



conform with industrial standards and manufacturing practices?

In very special cases where criterion (2) cannot be met, and it is the opinion of the Standards and Specifications Committee and the Central Board of Purchases that the best interest of the City will be served by eliminating competition, such specification is adopted.

Development of Specification for Topsoil for Planting.—The following is an example of how a Specification of the City of Milwaukee B-1-3b, March 9, 1953, for Topsoil for Planting has been developed. The tentative specification on this material originated with the City Forester. When the Standards and Specifications Committee met, there were present, besides the City Forester, the head of the City Testing Laboratory, representatives of other City departments which use topsoil such as the Playground Division, the School Board, the Housing Authority and the Harbor Commission, plus the representatives of prospective bidders. Each department head involved and prospective bidder had been previously furnished a copy of this tentative specification. This specification was then publicly read and studied, item for item, and when revisions had been agreed upon to meet (1) requirements of the City for satisfactory material and delivery, (2) requirements of the City for full and open competitive bidding, and (3) any legitimate objections of prospective bidders as to discriminatory or unnecessarily complicated provisions of the specification or provisions which might work an undue hardship on bidders, this specification was adopted by the Committee subject to approval by the Central Board of Purchases.

Rejection of Specifications.—Occasionally specifications are rejected by the Central Board of Purchases and returned to the Standards and Specifications Committee for further study. Such rejections are the result of open meetings held by the Central Board of Purchases, at which time the Standards and Specifications Committee makes its reports. Further hearings are then conducted by the Committee, and the specifications may or may not

be further revised or amended. The Secretary of the Central Board of Purchases, arranges for these meetings. The revised specification is then brought back to the Board by the Secretary by being included in the agenda of the Board's meetings which he prepares, unless the Board has given the Committee carte blanche to act. It is seldom that such procedure of review is necessary, and it has only occurred in highly controversial cases, such as in the purchase of two-way police radios and other highly technical equipment.

Review of Specifications.—Each year, prior to the use of standards and specifications covering items which vary technologically year by year (this is particularly true of motor vehicles, and two-way radios), an inquiry is made of the City departments concerned and of the vendors whether there is any reason, in their opinion, why the latest specification used should not be used again. This is also being done for the reason that there may have been some technical or physical problems during the previous contract period which should be considered prior to reuse.

Other active specifications are reviewed annually by the Purchasing Agent and his assistant. If it is found that no change is necessary, the specification is automatically used without revision. If, however, the specification requires revision, it is referred to the Standards and Specifications Committee by the Secretary of the Central Board of Purchases. The "expected life" of a specification is usually less than three years.

Revision of Specifications.—There is no set period for revision of specifications, except when determined during their annual review. The need for change usually comes to the attention of the Purchasing Department through (1) statements of prospective bidders; (2) technological advances, observed in business and purchasing magazines, vendors' catalogs, and other sources; (3) recommendations of department heads, and (4) City Testing Laboratory reports. Necessary revisions are incorporated in the specification immediately following the public hearing procedure provided, of course,

the suggested revision is of sufficient importance to warrant this procedure. In other cases, the City purchasing agent makes these revisions.

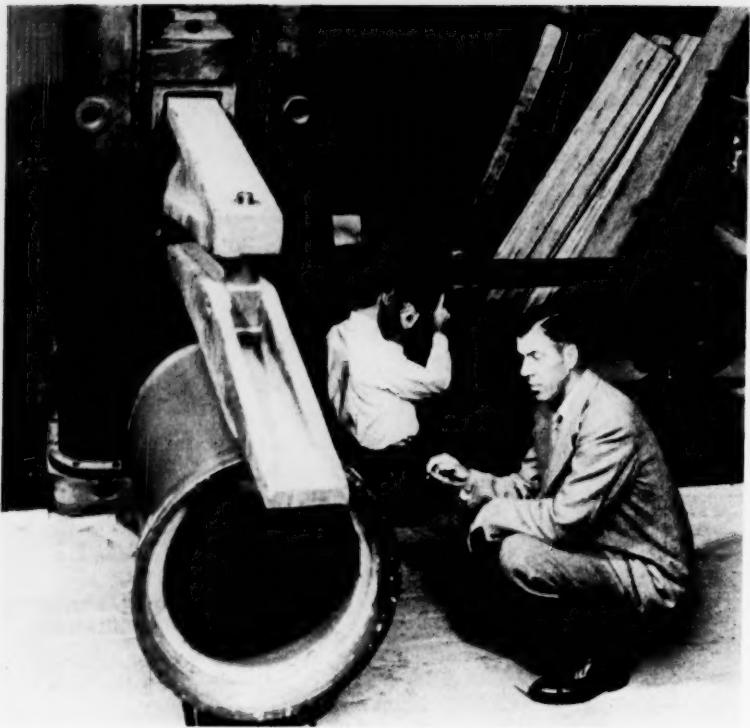
When a specification has been revised, a new date is assigned to the specification as of the date of revision. A revised specification always retains its original designation (number), but the latest date determines its correctness and validity. Specifications containing previous dates automatically become obsolete and are discarded, since in the specification carrying the latest date are incorporated any and all revisions up to that date. It is therefore necessary to carefully study and revise, if necessary, such specifications on an annual basis prior to use.

Use of Nationally Recognized Standards and Specifications

Wide use is made of nationally recognized standards and specifications. Upon receipt of a request for the purchase of an article on which no City of Milwaukee Standard or Specification is available, or upon receipt of a tentative specification for an article, a check is made with the file of specifications to see whether there is in existence a Federal or a nationally recognized standard or specification pertaining thereto. If such specification is available, it is used wherever possible rather than setting up a new specification, which may not conform to nationally recognized standards of manufacture. However, in many cases existing specifications are revised by the Standards and Specifications Committee to conform to particular requirements of local conditions. There are many items, however, such as pyrotechnic displays, auto tires, fluorescent lighting fixtures and others on which there are no national standards. In these cases City of Milwaukee specifications were originally prepared.

Testing of Commodities After Delivery to Ascertain that They Conform to Purchase Specifications

Testing Laboratories.—Commodities delivered to the City of Milwaukee, the quality of which cannot be definitely determined by physical examination, or simple on-the-spot tests, are tested by testing laboratories of the



Here, the strength of a section of sewer pipe is tested at City of Milwaukee's testing laboratory. R. A. Burmeister, Materials Engineer (foreground), scans pipe for signs of strain; Harold Hahn, Assistant Materials Engineer, reads load it takes before pipe is smashed with big test machine.

City of Milwaukee. There is a general City Testing Laboratory equipped for physical and chemical tests, under the jurisdiction of the Commissioner of Public Works. This laboratory is engaged chiefly in testing pavements laid by contractors and materials purchased by the city. It also performs other testing work for the Public Works and the Purchasing Departments. There are also smaller testing laboratories maintained by the City Water Department, the City Health Department, the City Sealer, and the City Sewerage Commission. The latter laboratories are of a specialized nature, but on occasion when they have the equipment to do the work for which the City Testing Laboratory is not equipped, they also do certain testing for the Purchasing Department. In special cases, such as testing the fusion point of fire brick and coal, or the octane rating of gasoline, the tests are performed by commercial laboratories which have the specialized equipment required for such tests.

Sampling, Inspection, and Testing Procedure. — The City Testing Laboratory conducts sampling, inspection,



Spectrophotometer is used by Milwaukee's Materials Engineers for fast chemical analyses. Instrument tests subjects that can be brought into colored solutions capable of selective absorption of light.

and testing for the Purchasing Department, when it is required in connection with certain contracts. As soon as such contracts are let, the City Testing Laboratory receives a written request from the Purchasing Department, together with a copy of the specification used. Some of the larger operating departments of the City conduct their own inspection and tests, such as the Bureau of Electrical Service, which built and maintains the street lighting and traffic system and the Water Department, which built and operates the Municipal Water Works. Outside services are usually employed for inspection and tests to be made at point of manufacture, except within a 100-mile radius of the city.

Designation of Specifications of the City of Milwaukee

The designations of the City of Milwaukee Specifications are completely significant, in accordance with a definite code.

For example, in City of Milwaukee Specification No. I-4-3a-1c for 85 Foot or 100 Foot Gasoline Engine Propelled — Tractor Drawn, Six Wheel, Aerial Ladder Truck — with Tiller, Capital letter I refers to the group Machinery, Vehicles, and Electrical Equipment. The second figure "4" refers to Vehicles and Bodies and Parts. (No. 1 in this division is Engines; No. 2 — Packing, Pipe Covering and Gaskets; No. 3 — Electrical Machinery and Supplies, Wire and Cable, Lamps, Radio Equipment.) The third figure "3" refers to Motor Trucks. (No. 1 in this division is Passenger Cars and No. 2 — Chassis for Trucks.)

Index of City of Milwaukee Specifications

A card index of approximately 600 standards and specifications in use by the City of Milwaukee is available and may be consulted at the Office of the Purchasing Agent.

Commodity Code System

The Commodity Code System of the City of Milwaukee is patterned after and somewhat similar to that used by the City of New York. It was developed jointly by the City Comptroller

and the Purchasing Agent, and published in January 1946 under the title "Codification Catalog." This Catalog which is the Office Commodity Index of the City of Milwaukee, was issued "for the purpose of supplying information to all City departments so that the application and use of standard articles can be adopted throughout the City Government." The Catalog is in loose leaf form to which supplements are added from time to time. All requisitioning agencies of the City are instructed to familiarize themselves with the instructions and information contained in this catalog and to be guided accordingly in adopting their requirements to standard items and their proper description, and to specify them in the manner described when requisitioning them.

Commodity Classification.—Individual items purchased by the City of Milwaukee total over 60,000. They encompass the supplies alphabet from asphalt to zippers. These items are classified according to 38 basic commodity classifications, including three miscellaneous classifications as follows:

Codifications Index

COMMODITY CLASSIFICATIONS

Class No.

- 1 Athletic Equipment, Badges, Bunting, Flags, etc.
- 2 Books, Publications and Subscriptions.
- 3 Brooms and Brushes.
- 4 Castings and Forgings.
- 5 Cleaning and Janitorial Equipment and Supplies.
- 6 Clothing and Wearing Apparel.
- 7 Construction and Repair Materials and Supplies.
- 8 Cordage: Hemp, Jute, Manila, Oakum and Cotton.
- 9 Drafting and Engineering Supplies, Instruments of Precision and Parts.
- 10 Drugs, Acids, Chemicals and Gases.
- 11 Dry Goods, Textiles, Notions, Household Furnishings and Toilet Articles.
- 12 Electrical Apparatus, Accessories and Parts.
- 13 Food, Groceries, Meats and Poultry.
- 14 Fuel: Coal, Coke, Gasoline, Fuel Oil and Wood.
- 15 Furniture: Household.
- 16 Hardware: General.
- 17 Hardware: Bolts, Nuts, Nails, Rivets, Screws, Washers, etc.
- 18 Hose, Hose Fittings, Gaskets, Packing, Belting: Leather and Rubber.
- 19 Hospital, Laboratory and Surgical Apparatus and Supplies.
- 20 Lighting Apparatus and Supplies (Non-Electric).
- 21 Lumber.

- 22 Machinery Parts and Supplies.
- 23 Metals: Bars, Plates, Sheets and Shapes.
- 24 Meters and Repair Parts: Water.
- 25 Miscellaneous.
- 26 Automotive Parts and Supplies.
- 27 Office Supplies and Stationery.
- 28 Oil, Greases and Lubricants.
- 29 Paints and Paint Ingredients.
- 30 Pipes, Pipe Fittings, Gages, Valves and Plumbing Supplies.
- 31 Printing: Books, Cards and Forms.
- 32 Radio and Sound Signal Apparatus.
- 33 Tools: Hand, and Welding Supplies.
- 34 Wire, Cable and Chain.
- 35 Machinery, Heavy Equipment, Motor Vehicles, etc.
- 36 Office Equipment.

MISCELLANEOUS CLASSIFICATIONS

- 70 Repairs, Services, Official Bonds and Rentals.
- 72 Special Funds.
 - Locations (Delivery or Disbursing Points)
 - Units of Measure (Abbreviations)
 - Vendors.

Index — Commodity Classification

Following the Codification Index of 38 classifications as indicated above, the Catalog lists alphabetically under the heading "Index—Commodity Classification" the name of the article and the class number, as follows:

Name of Article		Class No.
Absorbers, Shock, Electrical	A	12
Accounting Machine		36
Babbit	B	23
Balls, Base		1
Zinc	Z	23

Commodity Classes

The title page of each class gives the Class Number, the Class Title, and information for ordering. For example: Class No. 1, Athletic Equipment, Badges, Bunting, Flags, etc.—Specify Material, Cotton, Wool, Leather, Metal, etc. Specify Design, Size, and Inscription. Under each class the following information is given: Commodity Code, Article and Description, Unit.

How to Find the Proper Commodity Code Number of an Item

To find the commodity code number

of an item, consult the alphabetical "Index — Commodity Classification" for the class number of that item. Knowing the class number, consult the Commodity Class subdivision of the Catalog under the proper description of the item. For example, the commodity code number for "Indoor, Base Balls" is determined as follows: Under "B" in the "Index — Commodity Classification" find "Balls, Base" — Class 1; in the Commodity Class 1 under Article and Description find "Balls, Base, Indoor," the Commodity Code Number of which is "0110-301."

Structure of the Commodity Code Number

The commodity code number for each item in the Catalog is composed of seven digits. The first part (four digits) is separated by a dash from the second part (three digits). For certain commodities, where there is a variety of styles, kinds, grades, etc., the first part (four digits) of the commodity code is significant. In other cases only the class (first two digits) is significant.

The commodity code number for Balls, Base, Indoor is "0110-301." The first two digits "01" refer to Class 1, the second two digits "10" to Balls, and the last three digits "301" to Base, Indoor. In like manner the commodity code number for Balls, Base, Outdoor is "0110-312," where "312" refers to Base, Outdoor. In these cases the first part of the code number is significant.

Since the Catalog has been in use, many duplications of stock items and errors in ordering have been eliminated.

Streamlined Centralized Buying Brings Great Economies

Total purchases of the City of Milwaukee, according to the "Annual Report of the Central Board of Purchases and Purchasing Department for 1952," by Joseph W. Nicholson, City Purchasing Agent and Secretary of the Board, "exceeds 8 million dollars per annum. Annual savings average 15 percent, or over 1 1/4 million dollars, due to purchasing on competitive bids, plus the advantage of standardization, study of market trends, and the use of adequate specifications, sampling and testing."

"PROFITING FROM INDUSTRIAL STANDARDIZATION"

Book by Benjamin Melnitsky

Reviewed by K. B. Clarke, Assistant Superintendent of Manufacturing Engineering, Western Electric Company, New York; Chairman, Company Member Conference.

For a long time there has been a growing need for a single place to which anyone interested in standards can go, to find out about the various aspects of industrial standardization. Mr Melnitsky's book seems to fulfill this longfelt want.

It is really a monumental work, and when one considers the ground covered and the detail with which the subject matter is developed, it is easy to understand how it took several years in the writing. The list of people, moreover, whom Mr Melnitsky contacted in the collection of his source material, reads like the Honor Roll of the standards movement and seems to cover practically every authority whose name comes to mind when questions on standards activities arise.

The footnote references alone in this book are worth the price of admission for they seem to constitute a complete bibliography of published treatises on the various phases of standards and standardization.

It is not possible in a limited discussion of a presentation of the magnitude and scope of this book to outline even in part the subject matter covered. But very briefly, it may suffice to state that the author starts by defining industrial standardization and enlarging upon the basic profit motive; he covers the history of the standards movement; delineates the sources available for industry, national, governmental, and global standards; outlines how to go about programming, establishing, implementing, and selling a company standards program; and then proceeds to supply very fine and detailed discussions of the factors involved in all the various categories of standards that fall within the general realm of industrial standardization.

Here is a book that carefully describes and waves a warning flag at

"over-standardization"; that answers such often-heard questions as "How do we go about setting up a standards organization?", "How can we evaluate the profits from our standards activities?", or the executives' common query, "Why should we spend money on standardization?". It quotes many, many "case histories" that are potent in their implications, but it is quick to point out that the value of standards does not stand or fall on histories alone.

It emphasizes that a very great deal of work has already been completed and material is ready for use by any company or organization embarking upon standardization activities as a new field, but that each standards program must be specially developed and adapted to an individual group's specific needs. And it clearly presents and substantiates the basic principles that standards, to be successful and profitable, must be dynamic not static, and voluntary not arbitrary.

Incidentally, we noted with some pride that Mr Melnitsky mentions the value of the role played by the Company Member Conference in the interchange of ideas by people mutually interested in the furtherance of standards.

This book should become part of the library of every company with a stake in the standards movement, which really means every industrial enterprise in existence. It will be an invaluable text book for the novice in standards work and a handy reference volume for the expert of long experience. It should be required reading for all in the anti-standardization camp — those to whom the word "standardize" is anathema. And finally, the statement on page 97, chapter VII, concerning the essentiality to a successful company standards program of enthusiastic endorsement from top levels of management, should be earmarked and placed on the desk of every company president where the standards man is having

his troubles from lack of support.

In an article, in a recent issue of *This Week* magazine covering an interview with Mr Edmund F. Mansure, Head of the General Services Administration of the United States Government, the statement is made, "He is saving taxpayers millions of dollars by a business stratagem — Standardization." There is no better handbook covering all phases of this "business stratagem" than Mr Melnitsky's tome.

This reviewer, as may be surmised by the foregoing random remarks, strongly feels that *Profiting from Industrial Standardization* is a very fine book which fully justifies the time and the trouble and the enthusiasm for the subject that obviously went into its compilation.

Conover-Mast Publishing Co, 205 E. 42nd Street, New York 17, N. Y. 381 pp. 120 illustrations. \$5.50. Available through STANDARDIZATION.

"FLAMMABLE" IS NOW OFFICIAL

The fiery battle long raging over the use of the term "flammable" as opposed to "inflammable" has finally simmered down. In May, 1947, STANDARDIZATION reported the warning of the Greater New York Safety Council that housewives interpreted "inflammable" as meaning "nonflammable." At the same time, we noted that for reasons of safety the word "inflammable" had been discarded by such organizations as ASA, the National Fire Prevention Association, and the American Society for Testing Materials. By March, 1950, STANDARDIZATION quoted the NFPA *Fire News*, which reported that for the first time the Congress of the United States had indicated in legislative phraseology that it had succumbed to the heated advocates of the term "flammable," and the Civil Aeronautics Board had been similarly overcome. But "flammable" had not yet blazed its way into the verbal social register — Webster. Now the August issue of

(Continued on page 314)

Announcing New Books . . .

• **1952 Book of ASTM Standards.** (American Society for Testing Materials, 1916 Race Street, Philadelphia 3, Pa. 1175 pp. In seven parts. Parts 1, 3, 6: \$12.00 each; Parts 2, 4, 5, 7: \$10.00 each. Complete set of all 7 parts: \$76.00 per set. For half leather add \$2.50 for each part.)

The 1952 Book of ASTM Standards includes more than 2001 standards, specifications, tests, and definitions for materials. The different parts cover:

- Part 1. Ferrous metals (291 standards)
- Part 2. Nonferrous metals (268 standards)
- Part 3. Cement, concrete, ceramics, thermal insulation, road materials, waterproofing, and soils (405 standards)
- Part 4. Paint, naval stores, wood, fire tests, sandwich constructions, building constructions (273 standards)
- Part 5. Fuels, petroleum, aromatic hydrocarbons, and engine antifreezes (213 standards)
- Part 6. Rubber, plastics, and electrical insulation (257 standards)
- Part 7. Textiles, soap, water, paper, adhesives, and shipping containers (294 standards)

Each part is complete with detailed subject index.

To keep the books up to date, a supplement will be issued to each part late in 1953.

• **1953 SAE Handbook.** (Society of Automotive Engineers, 29 West 39th Street, New York 18, N. Y. 1032 pp. 8½ x 11 in. \$10.00 to nonmembers; \$5.00 to SAE members.)

This year's edition of the annual handbook of the Society of Automotive Engineers contains the text of SAE standards, recommended practices, and general information reports. Data on characteristics of heat-treatment of steels, tension test specimens, and hardness tests and hardness number conversions are included among the important information reports.

A section on personnel of SAE committees includes a list of sectional committees under ASA procedure on which SAE is represented. Names of SAE representatives are given.

Sections of the *Handbook* cover: The Society; ferrous metals; nonferrous metals; nonmetallic materials; threads, fasteners, and common parts; electrical equipment; power-plant components and accessories; passenger cars, trucks, and buses; tractor and earthmoving equipment; marine equipment; automotive nomenclature; SAE designations; index.

As explained in the *Handbook*, many of the SAE Standards included in this edition conform to American Standards. These include standards on Unified and American Standard Screw Threads, bolts and nuts, involute splines and serration gages and gaging, and plain and lock washers among others.

Automobile drivers will be glad to know that bumper heights are the subject of one SAE standard, providing a "nonlocking-bumper" feature.

A Recommended List of Basic Periodicals in Engineering and the Engineering Sciences. Prepared by a Special Committee of the ACRL Pure and Applied Science Section, (Association of College and Reference Libraries, Chicago, 1953. 42 pp. \$0.75)

This *List* is an important step toward the coordination of voluminous indexes of the past into a standard guide which may be used in many different fields of technology. A total of 553 titles of interest to engineers and students and teachers of technology is listed in this extensive bibliography, compiled by 55 librarians from 43 institutions. In the "Introduction," William H. Hyde of the Illinois Institute of Technology, chairman of the committee, explains that "this *List* aims at a middle ground between the interests of undergraduate students and the general public, and the needs of specialized research workers, whether in industry or in the academic world."

The process of selection represents the findings of extensive surveys by the committee. Frequency of citation, recommendations by faculty members and by practicing engineers, and several other criteria were employed.

Each periodical is included on at least two lists: the complete alphabetical list and the classified subject list. Twelve areas of engineering are covered in the latter grouping: Aeronautical; Agricultural; Architectural; Ceramic; Chemical and Petroleum; Civil; Electrical; Industrial; Mechanical; Metallurgical and Geological; Textile; and Mathematics and Physics.

Recommended Practices for Spot Welding Aluminum and Aluminum Alloys. (American Welding Society, 33 W. 39 St, New York 18, N. Y. 1953. \$1.00)

After more than four years of effort involving compilation of data and making tests, the American Welding Society has just issued *Recommended Practices for Spot Welding Aluminum and Aluminum Alloys*.

Because the welding of aluminum requires certain special considerations it was necessary to issue these Recommended Practices in a separate bulletin, rather than include them with the Recommended Practices for steels and other metals issued in 1950, the Society reports.

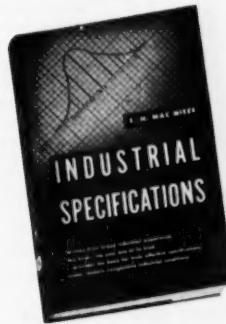
This is a manual of practical design and manufacturing data. Included is a table showing the combinations of aluminum alloys which can and cannot be spot welded. Mechanical cleaning and specific chemical cleaning methods are given for removal of surface oxide and foreign matter prior to welding.

Complete welding schedules are given for frequency converter machines; rectifier machines; electromagnetic and electrostatic stored-energy machines; and standard a-c machines. The electrical and pressure characteristics of these machines are illustrated and suggestions provided for altering the welding schedules for specific applications.

A complete chapter is included on weld defects, illustrated by photographs, and including a discussion of the causes of different defects.

If you're in a modern, competitive industry —

READ



INDUSTRIAL SPECIFICATIONS

By E. H. MAC NIECE

Director of Quality Control, Johnson & Johnson Co.; currently with the Mutual Security Agency

THIS book is a "must" for those who have the essential problem of specifying and controlling the characteristics, requirements, and quality of products and materials. It is the first book to show proven methods of planning, writing, and issuing effective specifications for various phases of your industrial operation.

E. H. Mac Niece shows you how to build, modernize, improve your system of specifications and points out rich dividends in better relations, greater efficiency, and increased ease of operations. The author's long record of industrial experience in shop and front office is demonstrated by the liberal supply of clear-cut illustrative examples.

Contents . . .

Our Increasing Need for Better Specifications • Variability and Tolerance • Cooperation Between Purchaser and Supplier • Standards, Standardization and Simplification • Essential Requirements for Raw Material Specifications • Examples of Raw Material Specifications • Process Specifications • Product Specifications • Federal, State, City, and Institutional Specifications • Standard Procedures and Job Specifications • Maintenance and Application of Specifications.

Sept 1953 158 pages \$4.50

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(8-103)

Standards From Other Countries

Members of the American Standards Association may borrow from the ASA Library copies of any of the following standards recently received from other countries. Orders may also be sent to the country of origin through the ASA office. The titles of the standards are given here in English, but the documents themselves are in the language of the country from which they were received. For the convenience of our readers, the standards are listed under their general UDC classifications. Initials in right-hand margin are standard symbols used with the identifying numbers of the standards. Please refer to these symbols and numbers when requesting copies.

019.9 SPECIAL BIBLIOGRAPHIES

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Testing for duration of oscillation • 50100
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BS

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SAA

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Approval and test specification for electric dry shavers and hair clippers • C.125-1952 Ap

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Canada

CSA

Construction and test of electric ranges • C22.2 No. 61-1953

Construction and test of thermoplastic-insulated wires and cables • C22.2 No. 75-1953

France

NF

Armored cables with mineral insulating material. Specifications • C 32-300

Germany

DIN

Gages for fuse cartridge threads • 40451
Small lead-acid batteries, enclosed type • 40733

Steel (nickel-cadmium) tubular batteries • 40752
Standard nominal voltages • 41312

Identification method of small fixed capacitors • 41313
Overhead line circuit breaker for 60, 110 and 220 kv • 43619

Cylindrical heating elements • 44926

Receptacles for heating appliances • 49490

3 standards for screw-type lamp bases • 49615, 49620, 49625
3 standards for bayonet-type lamp bases • 49715, 49720, 49740

Two-cell steel (nickel-cadmium) batteries for portable lanterns • 40751
Paper capacitors 160v to 750v • 41197

Fixed resistors, 0.05 w and 0.1 w • 41398/9

Rotary resistors for telecommunication • 41455
Three-phase squirrel-cage motors, enclosed type • 42671

Three-phase loom motor • 42675
Two-pole plug and receptacle for railless battery-operated cars • 43571

Aluminum bus bars • 43670
Jewels for electric measuring instruments • 43803

Recording electric meter housings dimensions • 43830
Base boards for electric meters, types NA, NB, NC • 43853

Lamp base, bayonet type BA 20 • 49730
Graphical symbols for switch gear • 40713

Steel-nickel-cadmium storage battery • 40756
Spring contacts for telecommunication • 41020

Ceramic, pressboard, and glass tubes for fixed capacitors • 41110, BL14

Fixed paper capacitors, 160v to 750v • 41183
Small transformers' cores • 41302

Plastic and foil fixed capacitors • 41380
Wire resistors, 0.5 w to 50 w • 41410

Different form of wire terminals for telecommunication • 41497

Radiators for oil transformers • 42559
Principal dimension symbols of electric machines • 42939

Controller dial plate • 43311

Ceramic sleeve for thermocouple protection • 43724

Electric meter mounting bolts • 46300

Type A inside insulators • 48100

Steel-aluminum overhead lines • 48204

Clamps for power lines. Delivery specifications • 48215

Insulating oil. General specifications • 51507

Testing of insulating oil • 51553

India

I.S.

Electric hot plates • 365

Hard-drawn stranded and steel-cored aluminum conductors for overhead power lines • 398

Israel

SI

Screwed lampholders, Edison type • 78

Italy

UNI

Telephone, wall type, manual, battery operated for railways and tramways • 3267

Netherlands

N

Galvanized steel wire for overhead lines. Dimensions and properties • 385

Galvanized steel wire for overhead lines. General rules and methods of test • V 3019

Terminology of electrical fittings for inside lighting • 953

Electric fences. Nomenclature • 971

Poland

PN

23 standards in electrical engineering field such as electric machinery, installation material, etc. • Section E

Electric machines. Dimensioning • E-01110

High tension a-c switches • E-06100

Lightning arresters for a-c installation • E-06101

Rules for electrical installations under 750v • E-93002

4 standards for telecommunication apparatus • T-82112, -83200, -90003, -92050

South Africa

SABS

Code of practice for the protection of buildings against lightning • 03-1952

Standard specification for storage batteries for use in motor vehicles • 2-1952

Standard specification for miniature circuit breakers for the protection of electric motors • 156-1951

Spain

UNE

Capacitors for automobile ignition system • 10038

Testing spark plugs • 10039

Insulating tape • 20019

Dynamo for automobiles • 26122

Wooden crosspieces for overhead lines • 21004

Sweden

SIS

Voltage test • SEN-26

Domestic heating appliances. Functional tests • SEN-41

Small electrical machines • SEN-62

Switzerland

SNV

Industrial outlet receptacles, fixed and portable • 24536

Copper or aluminum round wires for conductors, standard sizes • 24700

United Kingdom BS
 Bulbs for miners' electric lamps • 535:1953
 Lead and lead alloy sheaths of electric cable
 • 801:1953
 Portable electric hand-lamps (open type with protective guard) • 1980:1953
 Memorandum on values for the properties of high-conductivity copper • 1989:1953
 Wood poles for overhead lines (power and telecommunication lines) • 1990:1953

621.64 DEVICES FOR CONVEYANCE AND STORAGE OF GASES AND LIQUIDS

Australia SAA

Specification for manganese steel cylinders for the storage and transport of permanent gases • B.110-1952

Specification for manganese steel cylinders for the storage and transport of high-pressure liquefiable gases • B.111-1952

Czechoslovakia CSN

18 standards for pipe fittings • Series 313810

Germany DIN

Light and medium weight steel pipes • 2440

Delivery specifications for fittings • 3230

Israel SI

Pipes, cylindrical, of nonreinforced concrete • 27

Italy UNI

13 standards for taps and cocks of different types for marine purposes, heavy duty • 3289/3301

Poland PN

7 standards for different wedge valves • M-74024, -74025, -74029, -74030, -74034, -74038, -74075

7 standards for different ring gaskets • H-74375/-74378, -74380, -74381, -74385

629.11 LAND VEHICLES. TRANSPORT ENGINEERING

Czechoslovakia CSN

2 standards for trailer coupling attachment • 303660, 307450

Germany DIN

Three standards for bicycle parts • 79426, 79361, 79651

Poland PN

Two-wheel barrow for concrete • B-46003
 Automobile reflex reflectors • S-76090, -76091

Bicycle's pedal axle • S-46091
 8 standards for box locking latches for railway • S-48005/-48012
 4 standards for bicycles, etc • Section S

Spain UNE

Different types of pipe plugs • 26079/80
 Gasket rings • 26081
 Determination of fuel consumption by automobile • 26085

USSR USSR

37 standards (in one booklet) for different types of pipe fittings used in automobile, tractor, and similar constructions • OST 20061/97

629.12 SHIPS AND SHIPBUILDING

Germany DIN

Marine-type cap nuts with collar • 80711
 Marine-type square-head nuts with collar • 80707

Metric screw thread used in shipbuilding, general • 80100

13 standards for different types and sizes of portholes and lights • 81600/12



Blackstone Studios

This Month's

Standards

Personality...

Karl Geiges, nationally prominent for his standardization activities in the electrical industry, both the civilian and military branches, is the newly appointed chief engineer of the Underwriters' Laboratories Incorporated. Mr Geiges joined UL in 1928 and has remained on the staff since, except for the years he spent during the war in Government service. He went to Washington in 1942 to become chief of the Electrical Section of the Conservation Division of the War Production Board. He was responsible for standardization and substitution in the electrical industry, including preparation of the Limitation Order on Incandescent and Fluorescent Lamps, L28A.

In October, 1943, as a lieutenant in the United States Naval Reserve, he was assistant to the Navy Chairman of the Army-Navy Joint Specification Board. Among his achievements in coordinating the purchasing requirements of the various Services—with emphasis on radio and radar component standardization—was the development of the JAN-I-225 Standard on Radio Interference, the first JAN specification to be approved as American Standard. For his Inter-Services standardization work, Mr Geiges received a Navy Commendation.

Testing, inspecting, and analyzing the design of electrical equipment have been Mr Geiges' specialties in the twenty-five years he has spent at Underwriters' Laboratories. He has been variously appliance section head, service engineer, and chief electrical engineer, heading New York, Chicago, and San Francisco Electrical Divisions. Now, as chief engineer, he is in charge of engineering work at New York, Chicago, and San Francisco Testing Stations.

In several capacities, Mr Geiges has contributed his knowledge of standardization to ASA. For the past seven years he has worked on the Electrical Standards Board, of which he is now an alternate.

16 standards for structural details of port-holes and lights • 81619/30, 81640, 81697/99

Poland PN
 16 standards in the field of shipbuilding • Section W

Spain UNE
 Different types of roller chocks • 27013

629.13 AERONAUTICS. AIRCRAFT ENGINEERING

Netherlands N

2 standards for round-head and countersunk rivets for aircraft • V 991/92

Poland PN

49 standards for different details of airplane propeller hubs, shafts, spark plugs, etc • L-36051/56, -36060/65, -36070, -36150, -76005/08, -76012, -76014/25, -76100, -76150, -82101/03, -82120/23, -82130, -85006, -95008, -95010/15

10 standards in the field of aircraft • Section L

627 TEXTILE INDUSTRY

(Note: The following standards were mistakenly credited to **Germany** [DIN] in the July, 1953 issue of STANDARDIZATION, page 219.)

Switzerland SNV

Washing of raw and scoured wool • 95645/46
 Determination of insect resistance of wool and other keratin-containing materials • 95902

Evaluation of the degree of resistance to moths and insects of wool and other keratin-containing materials • 95910/11
 Determination of crimpiness • 96418
 Determination of water absorption • 98581

685 LEATHER WORK

Ireland Irish Standards
 Men's heavy boots • 44:1953

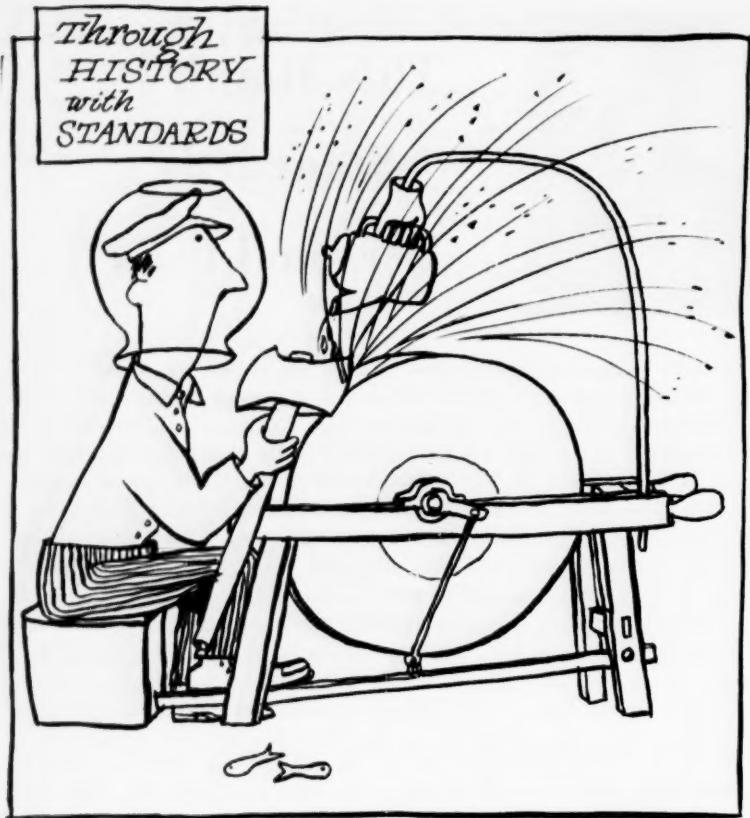
695 ROOFING

Israel SI
 Bituminous felt • 80
 Mastic asphalt for roofing • 68

Uruguay UNIT

Roof tiles, "Marsella" type • 91-53

Roof tiles, "Colonial" type • 92-53



Last in the Series

Grinding Wheel Safety—Now an Accomplished Fact

In this century American industry has achieved a remarkable and impressive record in the field of occupational safety.

One reason for this good record is the emphasis laid on safety standards—standards for guarding hazardous machines, for increasing safety of work places, for enclosing transmission apparatus, for manufacture and use of safety equipment, and for work procedures. Many groups are cooperating in a drive to make these standards truly national in scope, and they are using the machinery of the American Standards Association to do it.

A typical example is the American Standard Safety Code for the Use, Care, and Protection of Grinding Wheels.

Just after World War I, 14 states had laws regulating the use of abrasive wheels. No two of these regulations were alike. And insurance company provisions for safe use of grinding wheels differed from those of the states. A safety code published by the Grinding Wheel Manufacturers Association of the U. S. and Canada had entered its third edition but had not appreciably affected the situation.

In 1922 a safety code for grinding wheels was drawn up and approved as American Standard under the joint sponsorship of the Grinding Wheel Manufacturers Association and the International Association of Industrial Accident Boards and Commissions. The code contained complete rules and specifications for safety in the storage, handling, mounting, and operation of wheels; for protection flanges, hoods, chucks, and revolving cup guards; for operating speeds; and for materials suitable for use in both guards and wheels.

Having national status, the code was adopted by more and more regulatory bodies. Today the revised American Standard Safety Code for the Use, Care, and Protection of Abrasive Wheels is sponsored by the Grinding Wheel Institute and the International Association of Governmental Labor Officials. It has been adopted by most state departments of labor and industry, factory inspection departments, and departments of safety and health. The 36 states in which the code prevails cover practically all the industrialized areas of the country.

The manufacturers of abrasive products are no longer hampered by lack of uniformity in state or local regulations. The buyers of the products receive a better product at a cheaper price. The workman is protected by the best safety specifications that experts can devise.

More than 160 such American Safety Standards are in daily use throughout the nation. They cover a wide variety of fields and include such standards as those for elevators, building exits, wooden ladders, window cleaning, mechanical refrigeration, power presses, pressure piping, power trucks, concentrations of toxic dusts and gases, protective clothing, drinking fountains, traffic signals, circus tents, outdoor signs, X-ray machines, and welding.

GAILLARD SEMINAR SCHEDULED FOR JANUARY 1954

Dr John Gaillard, mechanical engineer on the staff of the American Standards Association until January 1, 1954, will hold his next five-day seminar on industrial standardization from January 25 through 29, 1954, in the Engineering Societies Building, 29 West 39 Street, New York City. After January 1, 1954, Dr Gaillard will devote himself entirely to private consulting practice (see announcement in the September, 1953, issue of STANDARDIZATION).

The Gaillard Seminars, which have been held twice a year since 1947, resulted from the demand by industry for advice on the organization of company standardization work and training of the necessary staff in the writing of standard specifications. More than 200 men, representing over 120 organizations, have attended the seminars so far.

The January, 1954, session will consist of ten conferences, one in the morning (9:30 to 12:00) and one in the afternoon (1:30 to 4:00), Monday through Friday. At each conference one of the subjects on the seminar program will be presented by Dr Gaillard and then discussed around the table. These discussions will also give the conferees an opportunity to bring up their own problems.

For further details and registration (which is open now), write to Dr John Gaillard, 400 West 118 Street, New York 27, N. Y., or telephone him at the ASA office in New York, MURray Hill 3-3058.

"Flammable" Now Official

(Continued from page 310)

National Safety News, published by the National Safety Council, reveals that Webster's New Collegiate Dictionary has accepted "flammable"—as shorter and more clear—and by this recognition has rendered the controversy no longer "flammable".

AMERICAN STANDARDS

Status as of September 14, 1953

Legend

Standards Council—Approval of Standards Council is final approval as American Standard; usually requires 4 weeks.

Board of Review—Acts for Standards Council and gives final approval as American Standard; action usually requires 2 weeks.

Standards Boards—Approve standards to send to Standards Council or Board of Review for final action; approval by standards boards usually takes 4 weeks.

Building

American Standards Published —

Nonslip Oxychloride Composition Flooring and Its Installation, Specifications for, A88.5-1952 \$0.35

Terrazzo Oxychloride Composition Flooring and Its Installation, A88.6-1952 \$0.35

Industrial Granolithic Oxychloride Composition Flooring and Its Installation, Specifications for, A88.7-1952 \$0.35

Oxycement Underlayment and Its Installation, Specifications for, A88.8-1952 \$0.35

Sponsors: American Society for Testing Materials; National Bureau of Standards

In Construction Standards Board —

Building Code Requirements and Good Practice Recommendations for Masonry, A41.1 (Revision of A41.1-1944)

Building Code Requirements for Minimum Design Loads in Buildings and Other Structures, A58.1 (Revision of A58.1-1945)

Sponsor: National Bureau of Standards

National Plumbing Code, A40.8 (Revision of A40.7-1949)

Sponsors: The American Public Health Association; The American Society of Mechanical Engineers

Drawings and Symbols

American Standard Approved —

Letter Symbols for Radio, Y10.9-1953

Sponsor: The American Society of Mechanical Engineers

Reaffirmation Requested —

Graphical Symbols for Pipe Fittings, Valves, and Piping, Z32.2.3-1949

Sponsors: American Institute of Electrical Engineers; The American Society of Mechanical Engineers

Electrical

American Standards Approved —

Rubber-Insulated Tree Wire, Specifications for, C8.16-1953 (Revision of C8.16-1940)

Covers the requirements for insulated tree wire suitable for use on overhead electric distribution systems. Requires that, when properly installed, the wire will resist deterioration due to age, and wear caused by rubbing against branches of trees.

Sponsor: Electrical Standards Board

Flexible Cord and Fixture Wire, C33.1-1953

Covers the requirements for flexible cord and fixture wire, except armored cords, for use in accordance with the American Standard National Electrical Code, Cl. This American Standard is the same as the Underwriters' Laboratories' standard of the same name, except that ASA approval does not cover paragraphs 5 and 6, and 380 to 480, inclusive, of the UL publication.

Contains complete requirements and tests for flexible cords and single-conductor fixture wires made of 21 different classes of insulating material.

Sponsor: Underwriters' Laboratories

Measurement of Test Voltage in Dielectric Tests (AIEE No. 4), C68.1-1953 (Revision of C68.1-1942)

Sets forth methods for the measurement of test voltages and wave shapes used in dielectric tests of electrical apparatus and insulating material. These tests are classified in three groups: (1) Puncture tests; (2) flashover test, and (3) voltage proof tests.

Sponsor: American Institute of Electrical Engineers

Incandescent Lamps for 114-, 120-, and 125-Volt Circuits, C78.100-1953 (Revision of C78.100-1949)

Lists dimensional and electrical characteristics so as to ensure interchangeability

Incandescent Lamps: Infrared Lamp for 115-125 Volt Service, C78.106-1953 (Revision of C78.106-1949)

Lists essential dimensional and electrical characteristics so as to ensure interchangeability.

Miniature Incandescent Lamps, C78.140-1953 (Revision of C78.140-1949)

Lists miniature incandescent lamps by trade numbers together with essential dimensional and electrical characteristics so as to ensure interchangeability.

Projector and Reflector Spot and Flood Incandescent Lamps for 115, 120, and 125 Volts, C78.107-1953 (Revision of C78.107-1949)

Lists dimensional and electrical characteristics so as to ensure interchangeability.

R-30 Bulb, Medium Screw Base Incandescent Lamps, C78.251-1953

Consists of outline drawing and essential bulb dimensions so as to ensure interchangeability.

Sponsor: Electrical Standards Board

Rigid Steel Conduit, Enamelled, Specification for, C80.2-1953 (Revision of C80.2-1950)

Covers the requirements for enameled rigid steel conduit as well as conduit couplings, elbows, bends, and nipples—for use as a raceway for the wires or cables of an electrical system.

Rigid Steel Conduit, Zinc Coated, Specification for, C80.1-1953 (Revision of C80.1-1950)

Covers the requirements for zinc-coated rigid steel conduit—as well as conduit couplings, elbows, bends, and nipples—for use

as a raceway for the wires or cables of an electrical system.

Sponsors: American Iron and Steel Institute; National Electrical Manufacturers Association

In Consumer and Electrical Standards Boards —

Household Automatic Electric Flatirons, C70.1

Sponsor: National Electrical Manufacturers Association

American Standards Withdrawn —

Guide for Operation of Transformers, Regulators, and Reactors at Altitudes Greater Than 3300 Feet (1000 Meters), C57.31-1948

Guide for Loading Oil-Immersed Distribution and Power Transformers, C57.32-1948

Guide for Loading and Operation of Instrument Transformers, C57.33-1953

Guide for Loading Pole-Type Constant-Current Transformers, C57.34-1948

Guide for Loading Step-Voltage and Induction-Voltage Regulators, C57.35-1948

Guide for Loading Current-Limiting Reactors, C57.36-1948

Sponsor: Electrical Standards Board

Incandescent Lamps: G-30 Bulb, Medium Skirted Screw Base, C78.249-1949

Sponsor: Electrical Standards Board

Gas-Burning Equipment

In Board of Review —

Addenda to Approval Requirements for Domestic Gas Ranges (Z21.1-1952), Z21.1a

Addenda to Approval Requirements for Domestic Gas-Fired Incinerators (Z21.6-1949), Z21.6a

Addenda to Approval Requirements for Gas-Fired Room Heaters (Z21.11-1949), Z21.11b

Addenda to Approval Requirements for Gas Unit Heaters (Z21.16-1951), Z21.16a

Approval Requirements for Central Heating Gas Appliances, Volume IV, Gravity and Fan Type Vented Recessed Heaters, Z21.13.4 (Revision of Z21.13.4-1951)

Approval Requirements for Domestic Gas Clothes Dryers, Z21.5 (Revision of Z21.5-1940)

Approval Requirements for Gas Water Heaters, Z21.10 (Revision of Z21.10-1950, Z21.10a-1951, and Z21.10b-1952)

Sponsor: American Gas Association

Mechanical

In Mechanical Standards Board —

Knurling, B5

Sponsors: Metal Cutting Tool Institute; Society of Automotive Engineers; National Machine Tool Builders' Association; The American Society of Mechanical Engineers

Standard Submitted —

Practices for Stationary Diesel Engines, B 68

Submitted By: Diesel Engine Manufacturers Association

Reaffirmation Requested —

Nomenclature, Definitions, and Letter Symbols for Screw Threads, B1.7-1949
Sponsors: American Society of Mechanical Engineers; Society of Automotive Engineers

Withdrawal Requested —

Acme and Other Translating Threads, B1.3-1941
Sponsors: American Society of Mechanical Engineers; Society of Automotive Engineers

Motion Pictures**American Standard Approved —**

16-Mm Motion Picture Projection Reels, PH22.11-1953 (Revision of PH22.11-1952)
Sponsor: Society of Motion Picture and Television Engineers

Standards Submitted —

Specifications for 3000-Cycle Flutter Test Film for 16-Mm Sound Motion Picture Projectors, PH22.43 (Revision of Z22.43-1946)

Multi-Frequency Test Film for Field Testing 16-Mm Sound Motion Picture Projection Equipment, Specifications for, PH22.44 (Revision of Z22.44-1946)

Sponsor: Society of Motion Picture and Television Engineers

Reaffirmation Requested —

Method of Determining Transmission Density of Motion Picture Films, Z22.27-1947, to be reaffirmed as PH22.27-1947

Raw Stock Cores for 35-Millimeter Motion Picture Film, Z22.37-1944, to be reaffirmed as PH22.37-1944

16-Millimeter Positive Aperture Dimensions and Image Size for Positive Prints Made from 35-Millimeter Negatives, Z22.46-1946, to be reaffirmed as PH22.46-1946

Negative Aperture Dimensions and Image Size for 16-Millimeter Duplicate Negatives Made from 35-Millimeter Positive Prints, Z22.47-1946, to be reaffirmed as PH22.47-1946

Theater Sound Test Film for 35-Millimeter Motion Picture Sound Reproducing Systems, Z22.60-1948 to be reaffirmed as PH22.60-1948

Sound Focusing Test Film for 35-Millimeter Motion Picture Sound Reproducers (Laboratory Type), Z22.62-1948, to be reaffirmed as PH22.62-1948

Scanning-Beam Uniformity Test Film for 35-Millimeter Motion Picture Sound Reproducers (Service Type), Z22.65-1948, to be reaffirmed as PH22.65-1948

Scanning-Beam Uniformity Test Film for 35-Millimeter Motion Picture Sound Reproducers (Laboratory Type), Z22.66-1948, to be reaffirmed as PH22.66-1948

1000-Cycle Balancing Test Film for 35-Millimeter Motion Picture Sound Reproducers, Z22.67-1948, to be reaffirmed as PH22.67-1948

Sound Records and Scanning Area of Double Width Push-Pull Sound Prints, Normal Centerline Type, Z22.69-1948, to be reaffirmed as PH22.69-1948

Sound Records and Scanning Area of Double Width Push-Pull Sound Prints, Offset Centerline Type, Z22.70-1948, to be

reaffirmed as PH22.70-1948

Sponsor: Society of Motion Picture and Television Engineers

Photography**American Standards Published —**

Dimensions for Photographic Paper Rolls, PH.11-1953 (Revision of Z38.1.5-1943 and partial revision of Z38.1.6-1943) \$0.25
 Contact Printers, Specifications for, PH3.8-1953 (Revision of Z38.7.10-1944) \$0.25
 Masks (Separate) for Use in Photographic Contact Printing of Roll Film Negatives, Specifications for, PH3.9-1953 (Revision of Z38.7.12-1944) \$0.25
Sponsor: Photographic Standards Board

American Standards Approved —

Method for Determining the Relative Photographic Efficiency of Illuminants, PH2.3-1953
 Method for Determining Exposure Guide Numbers for Photographic Lamps, PH2.4-1953
Sponsor: Photographic Standards Board

Pipe and Fittings**American Standards Published —**

Cast Iron Pipe Centrifugally Cast in Sand Lined Molds for Gas, Specifications for, A21.9-1953 \$0.25
 Cast Iron Pipe Centrifugally Cast in Metal Molds for Gas, Specifications for, A21.7-1953 \$0.25
 Cast Iron Pit Cast Pipe for Gas, A2.3-1953 \$0.25
Sponsors: American Gas Association; American Society for Testing Materials; American Water Works Association; New England Water Works Association

American Standards Approved —

Cast-Iron Screwed Drainage Fittings, B16.12-1953 (Revision of B16.12-1942)
Sponsors: Manufacturers Standardization Society of the Valve and Fittings Industry; Heating, Piping, and Air Conditioning Contractors National Association; The American Society of Mechanical Engineers

Standard Submitted —

Steel Pipe Flanges and Flanged Fittings, B16 (Revision of B16e-1939 and of Supplement B16e-1949)
Sponsors: Heating, Piping, and Air Conditioning Contractors National Association; Manufacturers Standardization Society of the Valve and Fittings Industry; The American Society of Mechanical Engineers

Reaffirmation Approved —

Cast Iron Pipe Flanges and Flanged Fittings, Class 125, B16.1-1948
 Cast Iron Pipe Flanges and Flanged Fittings, Class 250, B16b-1944
 Cast Iron Screwed Fittings, 125 and 250 Lb, B16.4-1949
 Ferrous Plugs, Bushings and Locknuts with Pipe Threads, B16.14-1949
 Brass or Bronze Screwed Fittings, 250 Lb, B16.17-1949
Sponsors: Heating, Piping and Air Conditioning Contractors National Association; Manufacturers Standardization Society of the Valve and Fittings Industry; The American Society of Mechanical Engineers

Safety**American Standard Approved —**

Safety Color Code for Marking Physical Hazards and the Identification of Certain Equipment, Z53.1-1953 (Revision of American War Standard Z53.1-1945)

Standard colors to indicate information such as: location of fire protection equipment; danger; stop; removal of guards or protective covers; striking, stumbling, or tripping hazards; location of emergency equipment; traffic aisleways; and radiation hazards. Includes technical definitions for the colors used. Does not cover navigation or transportation controls.

Sponsor: National Safety Council

Textiles**American Standards Published —**

Methods of Testing and Tolerances for Cotton Yarns, ASTM D 180-52T; ASA L14.13-1953 \$0.25
 Methods of Test for Asbestos Yarns, ASTM D 299-52T; ASA L14.18-1953 (Revision of ASTM D 299-50T; ASA L14.18-1951) \$0.25

Methods of Testing and Tolerances for Single Jute Yarn, ASTM D 541-52; ASA L14.34-1953 (Revision of ASTM D 541-49; ASA L14.34-1951) \$0.25

Methods of Testing Woven Asbestos Cloth, ASTM D 577-52; ASA L14.35-1953 (Revision of ASTM D 577-42; ASA L14.35-1949) \$0.25

Methods of Testing Asbestos Tubular Sleevings, ASTM D 628-52; ASA L14.41-1953 (Revision of ASTM D 628-44; ASA L14.41-1949) \$0.25

Methods of Testing and Tolerances for Jute Rove and Plied Yarn for Electrical and Packing Purposes, ASTM D 681-52; ASA L14.44-1953 (Revision of ASTM D 681-48; ASA L14.44-1949) \$0.25

Methods of Testing and Tolerances for Rope Made from Leaf and Bast Fibers, ASTM D 738-52; ASA L14.45-1953 (Revision of ASTM D 738-46; ASA L14.45-1949) \$0.25

Methods of Testing and Tolerances for Spun, Twisted, or Braided Products Made from Flax, Hemp, Ramie, or Mixtures Thereof, ASTM D 739-52; ASA L14.46-1953 (Revision of ASTM D 739-46; ASA L14.46-1949) \$0.25

Recommended Practice for Designation of Linear Density of Fiber, Yarns, and Other Textile Materials in Universal Units, ASTM D 861-52; ASA L14.48-1953 (Revision of ASTM D 861-50; ASA L14.48-1951) \$0.25

Methods of Test for Small Amounts of Copper and Manganese in Textiles, ASTM D 377-52T; ASA L14.49-1953 (Revision of ASTM D 377-47T; ASA L14.49-1949)

Sponsors: American Society for Testing Materials; American Association of Textile Chemists and Colorists

Wood Industry**American Standard Withdrawn —**

Cross Ties and Switch Ties, Specifications for, O3-1926

Sponsor: Association of American Railroads; U.S. Department of Agriculture (Forest Service)

What's New on American Standard Projects

Acoustics, Vibration, and Shock, Z24—
Sponsor: Acoustical Society of America

On recommendation of the exploratory committee on Subjective Tests for Communication Systems, Committee Z24 has set up a new writing group on Articulation Tests. A good deal of work has been done by laboratories on noise-voice interactions, analysis of articulation test data, on receiving overlapping messages, subjective evaluation of harmonic distortion, and similar problems. One laboratory has begun a sizable project of research into factors affecting speech intelligibility and prediction of subjective results from objective data. The new writing group will keep in touch with these research programs and be prepared to develop standards when the occasion arises.

A writing group to prepare a standard on calibration of vibration measuring instruments has been set up. It is proposed that the standard should be a guide to the method of use and operation of these instruments.

The exploratory group on Auxiliary Equipment for Shock and Vibration Measurement has been converted to a writing group. The group has recommended preparation of a standard with performance of the equipment as its primary purpose. It should also include auxiliary equipment which has become standardized for specific measurements, such as filters for shock measurements, the group declared. Suggested main headings include amplifiers; recorders; filters; cables and connectors; instruction manual; and counters.

Revision of the American Standard on Noise Measurement, Z24.2-1942, is to be undertaken by a new writing group entitled Sound Levels and Loudness. A second writing group will consider standard techniques to be followed in measuring sounds. This group is expected to prepare a revision of American Standard Test Code for Apparatus Noise Measurement, Z24.7-1950.

How to test acoustic properties of ear protectors will be the subject of

work to be undertaken by a new writing group. The group's work will be to prepare a standard procedure for measuring the physical attenuation of ear protectors on an artificial ear; the attenuation of ear protectors by elevation of absolute thresholds for free-field; non-acoustic properties such as toxicity, smoothness, compliance, and certain variances due to temperature and immersion in fluids; and variability of these factors in time, on successive insertions, and among different people.

The exploratory group on testing of bells has been changed to a writing group. One part of a standard now in draft form deals with tolerances in tuning bells; the other part describes the tests to be carried out in applying the standard and the instruments used in making the tests.

This proposed standard applies to bells as individual musical instruments, and to instruments of many bells—chimes and carillons.

The proposed standard for the tonality of bells has two divisions—pitch and intensity. The division on intensity offers some difficulty since it has to do with bell instruments of extensive range, such as large chimes and carillons. There always is some tonal unbalance between the large bass bells and high treble bells if the intensities of the bells throughout the series have not been matched, the committee reported. It is planned to include addenda covering standards for the carillon as an instrument. Here standards for the keyboard, the weight of the clappers in proportion to the bells they strike, the action, and the bell-frame will be presented.



48 of the 60 members of the Code Changes Committee who were present at the Annual Open Meeting held in the new headquarters offices July 31.

ON July 31 the Pacific Coast Building Officials Conference, author of the Uniform Building Code, passed another important milestone in its many years of service. This was dedication of its new Headquarters offices in the Walter P. Story Building, Los Angeles, California.

The new Headquarters office was designed by Hal Colling, Managing Secretary of the organization and is functional in every respect.

The Annual Open Meeting of the Code Changes Committee was held at the new Headquarters on July 31.

The Uniform Code has gained wide acceptance; some 675 cities in 39 states and the territories of Hawaii and Alaska are now operating under this Code.

Coordination of Dimensions of Building Materials, and Equipment, A62—

Sponsors: The American Institute of Architects; The Producers' Council

At a meeting of the A62 Executive Committee July 8, a proposed standard on modular dimensions for residential kitchens and laundry equipment was approved. The proposed standard is now going to letter ballot of the complete sectional committee before submittal to ASA for approval as American Standard.

In addition, a proposed standard on stall showers is under development. Further work remains to be done, however, since the present draft does not provide dimensions coordinated for all types of construction.

Two of the present four American Standards are being considered for reaffirmation. These are:

Basis for the Coordination of Dimensions of Building Materials and Equipment, A62.1-1945

Basis for the Coordination of Masonry, A62.2-1945

The other two, on clay and concrete masonry units and on clay flue linings, are being reviewed to determine whether they should be revised. Additional shapes and sizes will probably be included if revised editions are prepared.

Code for Pressure Piping, B31—

Sponsor: The American Society of Mechanical Engineers

A Task Force, appointed two years ago by the sectional committee to study the "expansion and flexibility" chapter of section 6 of the Code for Pressure Piping, has now submitted its report to the sectional committee. The report has been accepted for publication. The committee has also authorized use of the proposed rules, contained in the report, on work coming under the jurisdiction of the Code.

Copies of the Task Force's draft can be obtained, free of charge, from the American Society of Mechanical Engineers, 29 West 39th Street, New York 18, N. Y. Simply ask for "Proposed Flexibility Section—American Standard Code for Pressure Piping."

Send comments to L. W. Benoit, secretary, Sectional Committee B31, 420 Lexington Avenue, New York.

WHAT IS YOUR QUESTION?

Is there some sound method of testing inked ribbons at time of receipt to determine if the inking will hold up until use?

The correspondent who asks this question comments, "We purchase inked ribbons in gross yards for our adding machines. We, of course, test the ribbons in accordance with standard procedures, including portions of Federal Specification DDD-R-271 a. Our problem has been, not so much thread counts, amount of ink, etc., but the lasting quality of ink used by our suppliers. Tests at time of receipt indicate the ribbon to be satisfactory; however, at time of use, the ink has evaporated or consistency deteriorated."

It is suggested that if the ribbons were not properly packaged to prohibit evaporation, either in shipment or during storage, evaporation could occur. ASA has information to the effect that the National Bureau of Standards has done some work in connection with a method of testing ribbons but no recommendations are available so far.

We have received a number of requests for quotation, insisting that our products comply with "JIC" electrical standards. We do not know what the abbreviation stands for and have been unable to obtain information about these standards. Can you help us?

The initials JIC stand for Joint Industry Conference.

The Conference is a very loosely knit group of representatives of companies and associations who meet whenever the occasion demands to develop or revise standard recommendations covering the electrical, pneumatic and hydraulic equipment for machine tools. The proceedings of the Conference are carried on in a very informal way; the Conference actually not existing as an entity.

The purpose for which the standard recommendations are developed is to so improve the quality of performance of machine tools as to eliminate as far

as possible shut-down time due to failure of equipment or accidents to employees.

The JIC electrical standards for industrial equipment can be obtained from the General Motors Corporation, Production Engineering Section, Detroit 2, Michigan. The following groups also participated in formulation of these standards: Industrial Electrical Engineering Society of Detroit; Industrial Equipment Users; Industrial Furnace Manufacturers Association, Inc.; National Electrical Manufacturers Association; National Machine Tool Builders' Association; and Resistance Welders Manufacturers Association.

Is there some method of testing rubber hardness other than the Durometer test?

In posing this question, the correspondent explains that his company uses a Durometer test on rubber platens at the time they are received. Since the platens are round and the wall thickness is less than the Rubber Standards Manual specifies, the readings are not accurate.

Inquiries indicate that the Durometer hardness test using the ordinary Shore Instrument is not the most usual one employed in the testing of rubber platens. Where it is used satisfactorily, the Durometer is mounted on a stand and applied to the platen under a standardized dead weight load. The roll is held in a triangular grooved base so situated as to align the roll directly below the center of the indenter pin on the Durometer. This avoids error due to rocking the instrument or otherwise modifying the indentation. Possibly the most widely used hardness test for the rubber in platens is a dead weight gage having a $\frac{1}{8}$ in. diameter ball foot which is allowed to indent the rubber of the platen under a pressure of three pounds for a period of five seconds before the reading is taken of the indentation. The usual instrument is provided with a base which holds the roll in an exactly centered position.

ISO Council Work

(Continued from page 300)

tional standardization on the work of their organizations. In this connection there was also discussion of a proposed new international building which, it is planned, will be constructed in Geneva to house non-governmental international organizations. It is expected that this building will be available in about 18 months to two years and that ISO and IEC will have quarters therein. It was brought out by some of the visitors from other international bodies that the General Secretary of ISO, Mr Henry St Leger, had taken a leading part in the plans for this building.

The President of IEC, Dr Harold S. Osborne, reported on the activities of that body at its meeting held two weeks preceding at Opatija, Yugoslavia.¹ This welcome indication of closer coordination between the two organizations was noted with approval by the Council.

In line with such coordination, the Council decided to hold its next meeting in Geneva, but sufficiently close to the IEC meetings in September at Philadelphia to permit delegates from a long distance to attend both meetings without an undue delay.

¹ For reports on meetings of the International Electrotechnical Commission, see pages 293 and 295.

• • **The National Office Management Association** has just been elected as an additional member on the Miscellaneous Standards Board, the coordinating body for miscellaneous projects under the procedure of the American Standards Association.

National Electrical Code

(Continued from page 301)

In line with suggestions from motion picture producers, substantial modifications have been made in requirements for motion picture studios and similar locations. These are in Article 530. It is expected that these provisions will tend to unify local requirements throughout the country for the same type of equipment. A number of the changes recognize the problems presented by comparatively recent development of television studios.

The National Electrical Code (American Standard C1-1953) is being published in an inexpensive small-size edition by the National Board of Fire Underwriters and in two more durable, and more expensive editions, by the National Fire Protection Association. Copies can be ordered through the American Standards Association as follows:

National Electrical Code, C1-1953	\$0.10
NBFU 70, 4 x 6 1/4 in.	
NFPA 70, 4 3/4 x 7 1/4 in.	
paper-bound	1.00
cloth-bound, 6 x 9 in.	3.00

• • **Dr H. S. Osborne**, past chairman of ASA's Standards Council and president of the International Electrotechnical Commission, is spending six weeks in Brazil as advisor to the Brazilian Telephone Company. He will consult with the company on problems connected with its organization and with the operation of its telephones in the most populous and highly industrialized cities of Brazil, including Rio de Janeiro and São Paulo. While there, Dr Osborne will visit the Brazilian National Committee of the International Electrotechnical Commission.

• • **The model Fire Prevention Code of the National Board of Fire Underwriters** has been published in a newly revised edition. Since 1930 the Code has been a standard guide followed by communities throughout the nation in safeguarding life and property from the hazards of flammable and explosive materials and other occupancy hazards. The new Code, which the Board believes answers the needs of every municipality, was revised to bring it up to date with the latest nationally recognized safety standards. In addition, it contains a recommended ordinance which provides for a bureau of fire prevention and for adoption of the Code by reference. Copies of the Code can be obtained from the National Board of Fire Underwriters, 85 John Street, New York 38, N. Y.



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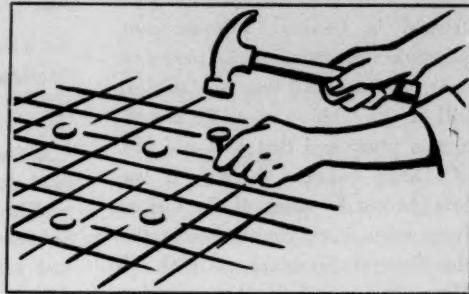
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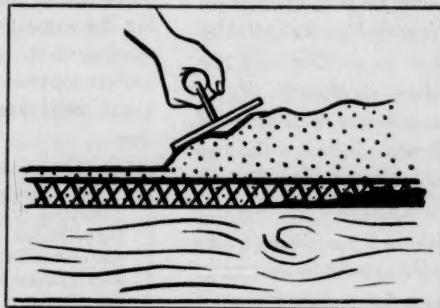
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